THE JOINT VISION FOR 2010 AND BEYOND: EVOLUTION OR REVOLUTION NOW?

A thesis presented to the faculty of the US Army Command and General Staff College in partial fulfillment of requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

by

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BS, United States Military Academy, West Point, New York, 1981

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Using an interest-based strategic approach to force modernization, this study describes the future environment beyond 2010 and assesses the two forces within that environment, completing several tasks in the process: (1) describing the future and identifying probable conflict points and competitors; (2) modeling the two strategic approaches; (3) assessing these approaches' utility against probable competitors; and (4) examining the implications of the assessment outcomes.

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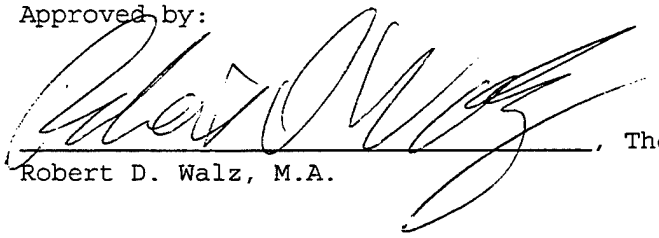

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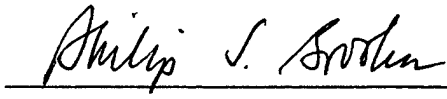

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ABSTRACT

THE JOINT VISION FOR 2010 AND BEYOND: EVOLUTION OR REVOLUTION NOW? by Major William C. Hix, US Army, 312 pages.

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TABLE OF CONTENTS

	PAGE
APPROVAL PAGE	ii
ABSTRACT	iii
ACKNOWLEDGEMENTS	iv
LIST OF FIGURES	vi
LIST OF TABLES	vii
LIST OF ACRONYMS	viii
CHAPTER	
1. INTRODUCTION	1
2. LITERATURE REVIEW	19
3. RESEARCH DESIGN	40
4. THE FUTURE ENVIRONMENT, AMERICAN INTERESTS, AND POTENTIAL FOR CONFLICT	46
5. THE FUTURE CONFLICT ENVIRONMENT	86
6. FUTURE FORCE DESIGN	108
7. FORCE UTILITY IN THE FUTURE ENVIRONMENT	174
8. CONCLUSIONS AND RECOMMENDATIONS	204
FIGURES AND TABLES	216
ENDNOTES	228
BIBLIOGRAPHY	283
INITIAL DISTRIBUTION LIST	312

LIST OF FIGURES

FIGURE		PAGE
1.	MERGING LEVELS OF WAR	216
2.	EXAMPLE BRIGADE GROUPS	217
3.	PROPOSED DIVISION STRUCTURES	218
4.	PROPOSED AIR EXPEDITIONARY WING ORGANIZATION	219
5.	CARRIER BATTLE GROUP	220
6.	EMA MARINE EXPEDITIONARY UNIT (SPECIAL OPERATIONS CAPABLE)	221
7.	PROPOSED PRECISION STRIKE DoD AND JOINT ORGANIZATION	222
8.	EMA CONCEPT OF OPERATIONS TAIWAN/CHINA	223
9.	RMA CONCEPT OF OPERATIONS TAIWAN/CHINA	224

LIST OF TABLES

TABLE		PAGE
1.	NATION STATE DIVISIONS WITHIN A TRISECTED WORLD	225
2.	EMA FORCE RECAPITULATION	226
3.	RMA FORCE RECAPITULATION	227

ACRONYMS

AEF	Air Expeditionary Force
AEW	Air Expeditionary Wing
ALCM	Air Launched Cruise Missile
ARF	ASEAN Regional Forum
ASEAN	Association of South East Asian Nations
ASW	Anti Submarine Warfare
AVN	Arsenal Ship, Nuclear
AWACS	Airborne Warning and Control System
BN	Battalion
BTRY	Battery
C3I	Command, Control, Communications, and Intelligence
C4I	Command, Control, Communications, Computers, and Intelligence
CAS	Close Air Support
CEC	Cooperative Engagement Capability
CICBM	Conventional Intercontinental Ballistic Missile
CINC	Commander in Chief
CIS	Commonwealth of Independent States
CJCS	Chairman, Joint Chiefs of Staff
CONUS	Continental United States
CSIS	Center for Strategic and International Studies
DIA	Defense Intelligence Command
DIC	Defense Intelligence Command (suggested organization)

DBK	Dominant Battle Space Knowledge
DoD	Department of Defense
DPRK	Democratic People's Republic of Korea
EMA	Evolution in Military Affairs
EU	European Union
FORSCOM	US Army Forces Command
GPS	Global Positioning System
IFV	Infantry Fighting Vehicle
IW	Information Warfare
GCC	Gulf Cooperation Council
JCS	Joint Chiefs of Staff
JFACC	Joint Forces Air Component Commander
JLOTS	Joint Logistics Over the Short
JSTARS	Joint Surveillance and Target Attack Radar System
JROC	Joint Readiness Oversight Council
JWCA	Joint Warfighting Capabilities Assessment
LANTIRN	Low-altitude Navigation and Targeting Infrared for Night
LAV	Light Armored Vehicle
LCAC	Landing Craft Air Cushion
LOC	Line of Communication
LOGCOM	Logistics Command (suggested organization)
LRPS	Long-Range Precision Strike
LRSC	Long-Range Surveillance Company
MBT	Main Battle Tank
MEF	Marine Expeditionary Force
MEU(SOC)	Marine Expeditionary Unit (Special Operations Capable)

MNC	Multinational Corporation
MPS	Military Prepositioned Shipping
MTR	Military Technical Revolution
MTW	Major Theater War
NAFTA	North Atlantic Free Trade Agreement
NATO	North Atlantic Treaty Organization
NDP	National Defense Panel
NDU	National Defense University
NIMA	National Imagery and Mapping Agency
NRO	National Reconnaissance Office
NTC	National Training Center
OOTW	Operations Other Than War
OTH	Over the Horizon
OPFOR	Opposing Force
PGM	Precision Guided Munition
PLA	People's Liberation Army
PLT	Platoon
PRC	People's Republic of China
QDR	Quadrennial Defense Review
RMA	Revolution in Military Affairs
RMT	Revolution in Military Technology
ROK	Republic of Korea
SACEUR	Supreme Allied Commander, Europe
SECDEF	Secretary of Defense
SPACECOM	US Space Command
SOF	Special Operations Forces

SSAN	Arsenal Submarine, Nuclear
STRATCOM	Strategic Command
TAACOM	Theater Army Area Command
TBD	Theater Ballistic Missile Defense
THAAD	Theater High Altitude Air Defense
TLAM	Tomahawk Land Attack Missile
TRADOC	Training and Doctrine Command
UAV	Unmanned Aerial Vehicle
UN	United Nations
US	United States
USAF	United States Air Force
USSOCOM	US Special Operations Command
USSR	Union of Soviet Socialist Republics
WMD	Weapons of Mass Destruction
WUAV	Weaponized Unmanned Aerial Vehicle

CHAPTER 1

INTRODUCTION

Background

The Department of Defense's Quadrennial Defense Review (QDR) has just ended, and the National Defense Panel (NDP) is now in progress. These bodies were formed to review national defense strategy in part due to the changing security environment, budgetary realities, and the promises of new and emerging technologies. Within the discussion surrounding this process, there are several schools of thought. Some look to a status quo or an incremental approach due to uncertainty. Others call for radical changes in force structure and purpose, in great part due to the promise of technology. Still others suggest an amalgamation of these views. This debate began prior to the recent Gulf War and increased in scope, volume, and position immediately following the 100-hour war. This war and the promise of technology, described by some as a revolution in military technology (RMT) and affairs (RMA), heralded great change. The question is, what change and why? The victory in the Gulf accelerated this debate. A review of certain aspects of that war, recent events, and similar events in history helps to frame this debate and its analysis.

During January and February 1991, the US Air Force (USAF) orchestrated a visually spectacular campaign against Iraq's leadership, infrastructure, and ground forces. The use of advanced technology and

smart weapons in this campaign received tremendous attention from the media, giving the impression that warfare had stepped into the push-button age. The performance of laser guided munitions, Patriot missiles engaging Scuds, and the image of Tomahawk cruise missiles flying down the streets of Baghdad, as seen on television screens, all reinforced this perception. Contemporary assessments of airpower and various technologies' performance (aircraft, precision guided munitions, cruise missiles, damage assessments, etc.) suggested a new kind of warfare, where ground combat would be an afterthought, necessary only to "clean up."

Concurrent to this performance, an explosion in information age technology occurred. Computer development surged. Computer use within the military soared; their use in processing and providing data to commanders streamlined the process of command, control, communications, and intelligence (C3I). With increased use of direct-feed-satellite imagery into the theater, Joint Surveillance and Target Attack Radar Systems (JSTARS) imagery feeds, unmanned aerial vehicles, and satellite command links, senior commanders were able to "see" the battlefield, the enemy, the terrain and their own forces as never before.

Arrayed against this emerging high-tech force were the Iraqi Armed Forces, on paper a formidable foe, equipped principally with first line Soviet and European ground, air, and air defense systems. As the outcome of Desert Storm showed, the potential of the Iraqi force was far greater, in terms of men, equipment, and technology, than was the Iraqi ability to exploit its first world capabilities. Possession, in this case, was not nine-tenths of the law.

The array of modern, technologically advanced weapons the US brought to the Arabian desert, and the procedures for using them, were the product of years of development and evolution. Precision guided munitions made their debut during Vietnam. Stealth technology got its start during the lean years of the Carter administration. AirLand Battle doctrine, the Abrams tank, and the Bradley fighting vehicle were products of the late 1970s and early 1980s. The decisive, some say revolutionary, capabilities demonstrated in the Gulf were the product of years of development, experimentation, and integration into the US military. The excitement sparked by the performance of these systems and the anticipated potential of the coming information age resulted in a wide ranging debate on the future of warfare and a probable revolution in military affairs.

A Revolution in Military Affairs

Prior to the events of the Gulf War and the follow-on explosion of information technology, the Commission on Integrated Long-Term Strategy published Discriminate Deterrence[1] outlining future strategies for the US, how to achieve them and the resources required. Additionally, the Commission published a series of working group papers addressing the future security environment and the role of technology in maintaining US security in that environment. Even before the current reductions began, the implications of technology for future US national security were being studied in detail.

The performance, actual and perceived, and use of these smart weapons and C3I capabilities during Desert Storm brought about a redoubling of efforts to exploit this technological capability even

before the conflict ended. The new Chief of Staff of the Army General Gordon R. Sullivan made force modernization and exploitation of the these new technologies' capabilities a priority.[2] As the US Armed Forces' manpower, equipment, and budgets again began to decrease, the services, individually and in concert with each other, began seeking technological improvements to allow US forces to do the same with less. This approach saw technology as a means to qualitatively improve the force that remained, not as an end to itself. Further, these technological improvements were a complementary addition to decreasing force structure; technology would not supplant the Armed Forces' basic roles, missions, and structure.

Other factors, such as the coming millennium and the changing world security environment, accelerated the search for technological solutions to the future. With the success of Desert Storm and the collapse of the Soviet Union (USSR), technology was seen as a way to maintain the edge of a smaller force. Risk was limited in building a smaller force, given the demise of the threatening hordes of tanks coming across the "Iron Curtain."

Yet, another view emerged advocating a true revolution in military affairs that pursued more than a qualitative improvement in existing, though decreasing, forces and doctrine. The fascination with the coming end of the century, coupled with the publication of the Tofflers' War and Anti-War: Survival at the Dawn of the 21st Century[3] and similar works, accelerated the search for a new way of war. The US is currently exploiting the promise of technology by pursuing a qualitative, evolutionary improvement to its forces. Still there are strong voices

for more dynamic, revolutionary change--new equipment, new organizations, new ways of doing business. Both camps make strong cases, but only one path can be taken.

The pursuit of what is characterized as a revolution in military affairs continues with celerity and ebullience. It is important to the US and the pursuit of national interests and goals that an effective and efficient armed forces transition into the next century. This force must efficiently and effectively exploit the full potential of the information revolution, in order to remain preeminent. It remains to be seen whether this portends a revolution in military affairs or not. However, failure to manage this change properly can result in catastrophe, as history clearly illustrates.

The Past--Why Exploiting Change Is Important

Change or so-called revolutions in military affairs have had profound effects on warfare and society as a whole throughout history. Seeking or more basically recognizing change, in the words of General Sullivan "seeing the elephant," and capitalizing on that change has been essential to victory throughout history. Failure has resulted in needless death, destruction, capital expenditure, and defeat. An examination of history will help in defining and analyzing the present revolution.

A revolution in military affairs is a difficult event to identify, as shown by the variety of positions on the present revolution, and in the historical context. There are various definitions and divisions of historical revolutions in military affairs. Andrew Krepinevich in "Cavalry to Computer" identifies ten revolutions, based on

"technological change, systems development, operational innovation, and organizational adaptation."[4] His list of revolutions runs from the infantry revolution of the Hundred Year's War to the nuclear revolution of the 1950s.[5] He has since recognized the information age as another revolution and is one of the strongest proponents for radically exploiting the current revolution. The Tofflers, in War and Anti-War, recognize only three revolutions linked to how mankind makes wealth.[6] These revolutions, or waves, correspond to the agrarian, industrial, and information revolutions. In The Military Revolution Debate,[7] a variety of scholars advance or question the existence of various military revolutions and their impact on early modern Europe. It is immaterial how many military revolutions there were, if any, or what caused them--technology, society, doctrine, or innovation. The recognition and proper exploitation of change have been the key to success throughout the history of armed conflict.

Reviewing revolutions in military affairs illustrates the importance of recognition and exploitation. During the Napoleonic era, one of Krepinevich's revolutionary periods, social change, not technology, fostered change in the manner armies were employed. The *levee en masse* allowed Napoleon's armies to tower over his opponents in terms of size and ability to absorb casualties. His opponents had the opportunity to act on the other changes of the era--artillery, the beginnings of the general staff system, organizational modifications--except for one, the social revolution and rise of patriotism sprouting from the French Revolution. These social factors provided Napoleon the catalyst to change markedly the way war was waged. Military historian

Peter Paret noted that "universal conscription . . . produced a great increase in the number of soldiers . . . enabl[ing] French commanders to fight more aggressively and costly campaigns, and to fight more of them."[8] The political reality of the monarchy system of Europe prevented Napoleon's adversaries from exploiting this revolution.

Proper exploitation of technological change can produce revolutionary results and success, failure often results in loss. Examples abound throughout the nineteenth and twentieth centuries. The advent of the industrial age arrived as the American Civil War began, and examples of success and failure are tied to exploiting change. The industrial North fought the agrarian South in what could be characterized as a Toffleresque confrontation of first and second wave warfare. However, both sides were in various stages of transition and demonstrated failures and successes in recognizing and exploiting the potential of change. Tactics failed to account for the development of rifled muskets, with their substantial increase in range and accuracy, with catastrophic results in terms of casualties (similarly repeated in World War I with the machine-gun). The South's use of the railroad to employ interior lines effectively at First Manassas was essential to their victory. However, looking at this war from the Tofflers' perspective, Grant's recognition at the Battle of the Wilderness that he could wage a war of mass annihilation marked the turning point of the war. The mass formations of Union soldiers, equipped with the mass produced tools of war, ground down the Confederacy.

The beginning of World War II illustrates the consequences of failing to appropriately exploit change. The Germans' success at the

opening of World War II was due to their recognition and fitting exploitation of technology, organization, and doctrine. As Eliot Cohen has noted, the "raw conceptual ingredients for blitzkrieg existed as early as 1918"[9] and Britain, France and Germany all invested in tanks and aircraft during the inter-war period. The Blitzkrieg was the product of getting many things right, and in Cohen's words "reflected a careful working out of the requirements of modern warfare."[10] The French, on the other hand, picketed their tanks along the Maginot Line. The result of this failure to see and exploit the potential of this revolution is well known. It is embodied in the battle of Dunkirk, where the remnants of the British and French armies were forced off the European Continent.

Anticipation, recognition, and the ability to exploit revolutions in military affairs, be they technologically, politically, socially, or economically driven, or a combination, are essential to success on the battlefield and the corresponding security of a nation. Failure results in unnecessary casualties (the Civil War) and often defeat (France in World War II) or destruction of the nation (the Confederacy in the Civil War). Sometimes forces are unable to act on the revolution due to circumstances beyond their control, as in the case of France's monarchist opponents in the Napoleonic Era. However, regardless of the reason for failing to exploit the revolution, great powers who do not are invariably supplanted by others. This is why it is so essential that the US military's search for new ways of war "get it right."[11]

The current revolution or impetus for change is framed in terms of technology given the corresponding information revolution (a "Net Year,"

or the period before another substantial change takes place, on the Worldwide Web is now about ninety days) but a revolution in military affairs incorporates many changes. Acting on change and incorporating the various components of a revolution in military affairs are essential to success and security. As the Italian strategist and proponent of airpower Giulio Douhet said, "Victory smiles upon those who anticipate change in the character of war, not upon those who wait to adapt themselves after they occur."[12] A strategy for action is fundamental and must be balanced: wait too long and competitors gain the upper hand; act too soon or too often and your forces become fragmented, without unity of purpose.[13]

The Future--Two Competing Views

A Revolutionary Approach

The revolutionary camp envisions future warfare built around systems and less and less dependent on man. Andrew Marshall, the long-time Director of the Secretary of Defense's Office of Net Assessment, as reported in a 15 July 1994 Wall Street Journal article, has advanced the proposition that US future force should take a new, more radical course in exploiting and integrating technology. He advocated a force designed to acquire targets, and engage them at long range with standoff or "brilliant" weapons that seek those targets independently after acquisition. The force described is devoid of "sunset"[14] systems, such as tanks, aircraft carriers, and possibly manned aircraft. The further reliance and purchase of these systems, he argues, will only pull resources away from innovative solutions for the future. Elimination of

these systems will likely require revision of current military roles, functions, and missions.

There are others advocating technology as the solution to future defense needs. At the 1996 Fletcher Conference, Richard Perle, former assistant secretary of defense in the Reagan administration, advocated that precision engagement was the best application of the emerging RMA. Further, manpower should be reduced to free up funding.[15] The Air Force, George and Meredith Friedman (the authors of The Future of War[16]), Edward Luttwak,[17] and others envision the imminent ability to find, fix, and destroy almost anything on the earth's surface with overhead sensors and precision strike.[18] Additionally, the Air Force concept of air occupation is also technologically driven.[19] These positions are revolutionary in their reliance on technology and herald the great potential and promise of information technology. They also envision warfare where technology supplants the man, and present systems and concepts are no longer valid.

An Evolutionary Approach

The evolutionary approach applies technology in a manner that makes man more effective and efficient. Technology does not supplant the human being nor obviate familiar ways of war. In Joint Vision 2010[20], the Chairman of the Joint Chiefs of Staff's vision of the US military in thirteen years, technological tools are key components of the Armed Forces in 2010. Changes to the US military's present roles, functions, missions, and structure are not suggested. Long-range acquisition and engagement, advanced C3I, and computers are promoted as part of the overall force capability, but this capability does not

supplant traditional ground, sea and air force roles. This vision promotes this qualitative, technological improvement to present force capabilities as applicable across the spectrum and levels of conflict. Joint Vision 2010 emphasizes high-intensity, conventional operations as the first priority. With this capability, "full spectrum dominance"[21] is possible through the versatility of the force design. This position is similar to the current approach taken with respect to missions such as peacekeeping. This approach holds that forces well trained for combat are capable of executing a variety of other missions with a small dose of mission specific training. Peacekeeping or other operations other than war do not have to be part of their habitual mission essential task list and training regime. In this same manner, Joint Vision 2010 forces can execute missions throughout the spectrum of and levels of conflict without major reorganization or change.

Which Path to Take?

In business, organizational effectiveness--doing similar functions in a similar, yet superior manner from the competition--does not provide a sustainable advantage over the competition. A sustainable and dominant competitive strategy rests on carrying out different activities or doing similar functions differently from the competition.[22] As an example, companies such as Southwest Airlines have been able to remain dominant in their market because the larger carriers have been unable to match Southwest's method of operation. The activity being addressed in this study is war. Applying this taxonomy suggests that to maintain a sustainable strategic position, the US military should focus on carrying out similar activities--making war--differently from the competition.

The precision strike advocates suggest that their path to future warfare provides this competitive position, and Joint Vision 2010 proponents will say the same.

It appears that Joint Vision 2010 is not a particularly controversial document, focusing only on the operational level of war and not addressing strategic implications and requirements. It may be conventional, particularly when compared to the revolutionaries' vision of twenty-first century warfare and forces. Joint Vision 2010 is a vision of evolutionary change. Richard Perle, Edward Luttwak, the Friedmans, and others see a revolutionary force, fundamentally different in organization, ways and means, that dramatically alters the present notion of warfare. The proponents of both evolutionary and revolutionary forces claim suitability across the future world landscape. Yet neither group of advocates presents a vision of the future world environment that is sufficient to diminish the other's claims of strategic effectiveness and utility. The United States cannot realistically achieve both visions. Zero growth or declining defense budgets clearly reflect this reality; and advocates of each path are quick to discount the other.[23]

The importance of adopting one vision over the other is further accentuated by the long-term consequences of that choice. The forces of 2010 will most assuredly be the forces of 2020 and beyond. For example, the M1 tank program exceeded twenty years in development and fielding, and is projected to be present well beyond 2010.[24] Force structure decisions made today will resonate well into the next century. The nation is at a strategic fork in the road, and the national leadership

must decide whether to proceed on the evolutionary route of Joint Venture 2010, or the revolutionary road to implementation of a technologically based RMA force. As General John Shalikashvili said, "If we correctly capture the promise of the electronic revolution, we can assure we remain the preeminent military power. If we miss the boat, all bets are off."[25] Future forces, well beyond 2010, will reflect the choices made today.

In order to choose wisely, decision makers must know the capabilities and utility of an evolutionary or revolutionary force from a future perspective. They must know what value that each force brings to the spectrum of conflict, what the most likely threat or threats will be, and how well each force will impact that threat environment(s). Evolution allows for the Department of Defense (DoD) organization to change incrementally over time. Evolutionary change may also provide a window for a competitor to exploit more rapidly the potential of the information age and gain an advantage. A revolutionary approach provides the opportunity to rapidly exploit the information age and maintain the advantage. There is developmental and technological change daily. There are also new social and political imperatives. The future may call for a revolutionary force, or it may not. Assessment of the future and the potential of each path of force development in that future will clarify the decisions that must be made in the present.

The purpose of this thesis is to determine whether the present course of modernization as described in Joint Vision 2010 is the wisest choice for the future, best exploiting the potential of an emerging

revolution in military technology and military affairs when viewed from a future environment and threat perspective beyond the Year 2010.

Assumptions

To determine the utility of the RMA force in the future, this study will proceed under two assumptions. First, that information age technology advances can support the requirements of a revolutionary force. Given the velocity of technological change, this assumption appears reasonable. Second, that defense budgets will not increase, except for inflation. In order to implement change effectively, the US must choose the proper modernization path given the future environment and challenges within that environment. As former Secretary of Defense Dick Cheney said, "budget drives strategy."[26] This is further reinforced by Secretary Cohen's recent remarks on balancing fiscal and strategic requirements, "I think you can [support a viable defense strategy on $250 billion], if you make the right decisions on the kinds of systems and what is required . . . [But, there] are risks involved."[27] In order to deliver an RMA force, choices must be made, cuts in near term readiness accounts and modernization accounts may be required. Which cuts and how much is a question for another study. For this study, the fact that choices must be made is sufficient for the examination of defense strategy.

Definitions

This thesis deals with a number of concepts that require definition to ensure clarity of understanding. Some may be familiar to

military and associated readers. Many reflect widely accepted terminology, but some do not.

Capabilities. Capabilities are a "properly organized, trained and equipped force" or services' "ability . . . to accomplish . . . particular mission[s] or function[s]."[28]

Evolutionary Force. An evolutionary force is organized around equipment and organizations that generally reflect today's roles, missions, functions and capabilities. An evolutionary force incorporates information age technology over time, and modifies its organization and equipment to reflect that integration. This force is the embodiment of Joint Vision 2010.

Force Structure. For this study, force structure is the organization, equipment and manning of each branch of military service. Force structure is designed to meet each service's roles and mission requirements.

Functions. Functions are "specific responsibilities assigned by Congress, the President, or by the Secretary of Defense to enable DoD components to fulfill the purposes for which they are established."[29]

Missions. Missions are tasks assigned by the president or the secretary of defense to commanders-in-chief (CINC) of combatant commands in accordance with the national security and national military strategies. Missions are tasks specific to national policy, the current security environment and responsibilities of the CINC.[30] Missions may include: employ strategic nuclear forces to deter and respond to nuclear attack, actively employ resources to build military and alliance readiness, and or deploy and employ forces to deter and if necessary

resolve conflict. Roles normally transcend changes in national interests, objectives, and the world situation; missions often do not.

Revolution-Revolutionary. Webster's Collegiate Dictionary, 10th Edition, defines revolution as "fundamental;" and revolutionary as "constituting or bringing about a major or fundamental change." The key word is fundamental.

Revolution in Military Affairs (RMA). The Office of Net Assessment, Office of the Secretary of Defense, defines an RMA as: "A Revolution in Military Affairs (RMA) is a major change in warfare brought about by the innovative application of new technologies which, combined with dramatic changes in military doctrine and operational and organizational concepts, fundamentally alters the character and conduct of military operations."[31] Dr. Earl H. Tilford, Strategic Studies Institute, US Army War College, states that this definition ignores the human factor.[32] With that in mind and taking Napoleon's *levee en masse* into account, an RMA is defined in this paper as a major change in warfare brought about by the innovative application of new technological, political, social, economic, or institutional change which, combined with dramatic changes in military doctrine and operational and organizational concepts, fundamentally alters the character and conduct of military operations.

RMA Force. A generally accepted definition of an RMA force does not exist. Given the position of Richard Perle, Edward Luttwak, the Friedmans, and others, a definition emerges. An RMA force is organized around information control and long-range acquisition and fire-and-forget missile or other systems that allow detection and

engagement/destruction of enemy formations without friendly forces becoming entangled in close combat or maneuver warfare in any medium--aerospace, sea or ground. This force arises from information age technology and will require development of new systems, organizations, roles, missions, and functions.

Roles. Roles are the broad and enduring purposes specified by Congress in law for the Services and selected DoD components.[33] For example, the US Army's role is to provide trained and ready ground forces in support of deterrence, and should deterrence fail to provide forces for sustained land combat.[34]

Limitations and Delimitations

While this study is comprehensive in scope and addresses many issues relevant to the subject of the RMA and future defense strategy, it is not all encompassing. There are several limitations to the range of this paper, given its audience, intent and scope.

To allow for a wide dissemination and the use by others, this study will remain unclassified. The research will be conducted using only unclassified sources.

A fiscal analysis is beyond the scope of this study. The specific costs associated with developing either force will not be addressed.

The potential for development of new systems, as described in any discussion of revolutionary force capabilities, will not be addressed beyond what is covered previously in assumptions.

Risk-to-readiness and near-term operations associated with redirecting current modernization dollars to revolutionary force development will not be addressed.

This study will not determine whether a true revolution in military technology or in military affairs exists. Assuredly, some emerging technology, if properly acted on, will produce revolutionary results--as with the Germans and the Blitzkrieg, but it is not sure that the technology is truly revolutionary. Using the previously discussed example of a "net year" being ninety days on the Worldwide Web, information technology and all it portends may well have only an evolutionary impact due to this almost continuous state of change.[35]

Significance

It seems clear that the US military will, must, change to meet the challenges of the next millennium. The question is how the military will change and why? The discussion of the Revolution in Military Affairs, the potential of information age technology, and future force roles, functions, missions, and structure transcends all services and ideas abound. There are many agendas, as forces and funds decrease, and competition for shrinking defense dollars increases.[36] What matters is that the national leadership chooses wisely. The decision to stay the evolutionary path may allow others to "leap ahead," as the Germans did between world wars, and to develop capabilities that negate significant portions of an evolutionary force's capabilities. Choosing the revolutionary path may increase risk in the near term, through 2010, as the current force ages. Delaying the decision much longer will lock in the evolutionary path due to budgetary realities, not strategic value. This thesis assists the decision makers by assessing each force's value in a specified future beyond 2010.

CHAPTER 2

LITERATURE REVIEW

Overview

The quantity of publications and information concerning the future and the steps the military should take to meet it is substantial. For example, two bibliographies from the US Army War College Library comprise seventy plus pages of references on the revolution in military affairs, the strategic vision of the twenty-first century, and the future in general. Most address several areas relevant to this thesis. Topics include the geopolitical situation, the nature of war, possible economic and security threats, security policy for the next century, the potential of technology, and social and demographic changes. Like Joint Vision 2010, many fail to link change to a probable future national security strategy. Specificity in many cases is not forthcoming. Many authors are theoretical or at the very least general in their dealings with the future. This insufficiency, coupled with a scarcity of studies that compare and contrast the multiple military options on the direction of US defense in the coming twenty to thirty years, fails to illuminate the issue clearly.

It is hard to be specific about the future. However, assertions made as to the nature of the future and the steps the nation must take to meet this future must be presented and based on factors that connect with decision makers.[1] Projections of the future are best done as

forecasts, as opposed to predictions or scenarios. Forecasting provides probabilities of what is most likely to happen, and which doctrines, technology, and organizations have the highest probability for success in that environment. Predictions (certainty) are fraught with danger. Scenarios are unable to cover the world environment sufficiently, and require user acceptance. Discounting unlikely possibilities allows a study or recommendation to be more right than wrong. This allows for intelligent decisions to be made on which way to go and for reasonable course corrections to be made as the future becomes clearer.[2]

There is a scarcity of writings, perhaps none, that encapsulates the entire problem--where to go on military modernization, what it will look like, and why. In order to answer the problem holistically, a study must accomplish several things in one package. It must describe the probable future and link future threats to national interests in order to identify probable points of conflict. It must then assess the adequacy of different military concepts to deter or defeat those threats. Finally, a holistic analysis must recommend a force requirement to meet future challenges. There are many works that speak to one service, advocate one path to a future military, look at the future environment and assess national interests, or compare possible force structures. However, none adequately address the entire problem.

Due to the current focus on the twenty-first century, technological change, and the rapidly changing world situation, there are numerous short periodical, scholarly, and government study pieces. Everybody seems to have an interest or position on this subject. The challenge is sorting through the tremendous volume of material in order

to find the substantial works. Works that provide a historical perspective, develop a projection of the future environment, that identify strategic requirements, and that discuss the potential of military change and technology and its proper application are scarce. In looking to fill this void, this paper assimilates and analyzes a variety of sources that address history, the future environment, strategy--geo-political, national and military, military technology, and the numerous proposals for military change.

Historical Perspective

History is important to understanding the future. As the old saying goes, those who do not study history are bound to repeat it. Ignoring the past when looking to the future removes the perspective of human experience. History is a record of change. History is not a sine wave or predictive about the future. However, history provides a record of how cultures and nations have responded over time to circumstances that may be similar to future eventualities. History provides insight into the likely interests and behavior of peoples around the world. History also identifies concepts and strategies that are proven over time. It is important to note that history is not dead. The historical record is alive and well in Bosnia, Albania, Rwanda, Nigeria, and Zaire, where ethnic and cultural hatreds hundreds of years' old have flared once again. As will be discussed in chapter 4, some of the studies of the future do not appear to have much basis in the past. Historical perspective was useful in preparing this thesis in three broad areas: first, long-term behavior and perspective; second, political strategy; and third, military history and past revolutions in military affairs.

Two works provide a historical and strategic perspective as well as any in publication: Millennium: A History of the Last Thousand Years[3] by Oxford historian Felipe Fernandez-Armesto and Diplomacy[4] by noted scholar and statesman Dr. Henry Kissinger. Millennium provides the true long view of the world and amply demonstrates the cycles and constancies of the world. Opening with an examination of the five major civilizations (Japan and China, Medieval Eastern and Latin Christendom and Islam), Dr. Fernandez-Armesto explores the last millennium, arriving at the dawn of what he describes as the Pacific challenge. Given the importance of the Pacific Rim today, his history is portentous.

Diplomacy examines the present global system and competition with a close look at how the world was shaped over the last one hundred years by the states present on the world stage today. Dr. Kissinger's perspective on the changing "world order," as laid out in chapter 1, is essential to any examination of the near future of the twenty-first century.[5] His cautions and prescriptions, while important to statecraft and national security, do not address the specifics of military forces.

Three excellent works on military revolution are Andrew Krepinevich's "Cavalry to Computer, The Pattern of Military Revolutions,"[6] The Military Revolution Debate: Readings on the Military Transformation of Early Modern Europe[7] and Martin van Creveld's Technology and War: From 2000 B.C. to the Present.[8] These works provide perspective on the real and perceived manifestations of military revolutions over history, the price of failing to see the requirement for change, and the impact of technology on them.

The Future Environment

The future environment determines where US national interests will lie, and who will threaten them and where. Military forces exist to counter these threats. Defining the future is essential to understanding the threats and what forces are required to deter or defeat them. There is no DoD wide future set or collection of scenarios to establish focus and direction in pursuit of Joint Vision 2010 or any of the supporting service modernization programs.[9] Though this study is directed at the US military, it is important to draw from a wide range of sources and perspectives. The works cited here are the most significant, due to either content or influence, and are from both military and civilian scholars.

The key work in this area, if only because of its influence and circulation, is the Tofflers' War and Anti-War: Survival at the Dawn of the 21st Century. The Tofflers are the popular visionaries that have been providing a view of the future since the 1970s. Their most current project War and Anti-War has inspired much thought and great debate within the government and has found many adherents, including the former Army Chief of Staff General (retired) Gordon R. Sullivan. This work focuses on the relationship between the making of war and the production of wealth.[10] The Tofflers describe a trisected world, with divisions reflecting the means of making wealth and where conflict takes place primarily among those three divisions. Its influence can be seen in many other works. The Tofflers' failure or weakness is that they trace trends and identify areas of concern, but they do not provide a framework for action, only for concern and alarm.

Two other books that take differing views of the future environment and sources of conflict are Samuel Huntington's The Clash of Civilizations and the Remaking of World Order[11] and Robert Kaplan's The Ends of the Earth: A Journey at the Dawn of the 21st Century.[12] Huntington, Director of the Olin Institute for Strategic Studies at Harvard University, presents a contrasting view to the Tofflers', describing an era of cultural conflict, confrontation, and accommodation. The future will likely be split by cultural rifts and resistance to global integration that, potentially, the information age suggests. That very potential to make the world a smaller place may become a source of conflict. While advocating a maintenance of military power, Huntington focuses on sources of conflict. Kaplan too sees a world that technology causes to fall apart, though his focus is at the low end of the scale of conflict with the appearance of failed nation states. The disintegration of these ungovernable nations begs attention, as Bosnia has, given their large populations and present connections to crime syndicates, drug cartels, and violence.

Herman Kahn's The Next 200 Years: A Scenario for America and the World,[13] written at the Hudson Institute seventeen years prior to War and Anti-War, provides a less theoretical and broader view of the future providing social, economic and environmental, projections through 2176. It provides a generally positive view of the world, discounting many currently worrisome trends such as energy depletion, resource shortages and population explosions. This work is particularly useful in the areas of demographics, economics, resources and trend projections. Kahn's long-range view of the future provides a contrasting perspective

of the near-term future, looking back from 2176--almost like Millennium in reverse. It allows the reader to get past immediate problems and look at the enduring trends and issues. This is important to determining what is important, where national interests will truly lie, and who or what will have the most credible capacity to threaten US interests.

Two other very useful nongovernmental publications on the future are Hammish McRae's The World in 2020: Power, Culture, and Prosperity[14] and John L. Petersen's The Road to 2015, Profiles of the Future.[15] Both of these books examine the future holistically, addressing global and regional issues, economics, environmental pressures, technology, government and politics, and conflict potential. These two books provide a thoughtful analysis on where the world will be in the next twenty to thirty years, and on how the world arrived at this point. McRae's work is more economically driven, and Petersen's is perhaps more comprehensive, but both are extremely useful to any study of the future.

There are a plethora of government studies and think tank publications concerning the future environment. Charles Taylor's A World 2010: A New Order of Nations[16] is the most specific and concrete of the futures studies. Taylor does not shrink from making forecasts and assigning probabilities to them. A World 2010 postulates a world of postindustrial, transitioning industrial, industrial, emerging and preindustrial states, where economics is the primary source of competition and conflict. The US will be the sole superpower in a defused or multipolar power environment where conflict will be confined to the regional level. Taylor sees energy and population crises,

nuclear proliferation, and a technology explosion. Coupled with his Alternative World Scenarios for A New Order of Nations,[17] a set of scenarios adjusted off his previous forecast, Taylor's body of work provides one of the two best sources from the defense community. Taylor ties his forecasts and scenarios to the actual world environment. His work contains no hypothetical nations or historically unlikely actions by nations or cultures. These two works provide a substantive backdrop for developing future security and military strategies, but they do not prescribe any particular course of action.

Another extensive study is the National Defense University's 2015: Power and Progress.[18] This is a very comprehensive work, addressing the world's great powers, coalition building, the world environment, the nature of conflict, and the impact of technology on warfighting. This study suggests that conflict involving the US will be rare. Warfare may transition to defensive primacy, platforms (tanks, ships) will become obsolescent in a conflict environment of sensor-fused standoff weapons, and coalitions are essential to US security.[19] Although 2015 describes this environment, it also fails to prescribe a specific policy or strategy to meet the challenges of the described environment.

The Air Force's 2025[20] is one of the more recent examinations of the future. This study had the largest population of participants examining the future, incorporating a large number of Air University students, faculty, and consultants. The six future scenarios are the synthesis of numerous trends and is certainly food for thought. The scenarios, do not always correlate with the present world--nations, cultural realities, history--and may fail to connect with the reader.

Of particular use are the annexes on long-range planning and trends. This work states up front that it does not propose to suggest changes in military strategy or defense policy, though it does provide a number of "out-of-the-box" solutions and visions of future warfare. Also of note are Andrew Krepinevich's articles in Issues in Science and Technology[21] and his works from the Center for Strategic and Budgetary Analysis, particularly The Conflict Environment of 2016: A Scenario Based Approach.[22] His articles identify an emerging revolution in military affairs, how this revolution impacts the military, and what the military should do to exploit this revolution and maintain strategic dominance. The scenarios laid out in The Conflict Environment of 2016 identify military and political trends for the future that may challenge US interests and capabilities. He is widely published on this subject and on the RMA in general; this monograph is a good encapsulation of his other works.

Strategy

The application of military power, to paraphrase Clausewitz, is an inherently political decision. In order to adequately address military strategy, it is essential to understand the underlying paradigms of world power, national interests and strategy, and national power. Hans J. Morgenthau, the father of realpolitik, in Politics Among Nations: The Struggle for Power and Peace[23] lays out a paradigm for national strategy based on the promotion and defense of vital national interests. Recent US history and actions reinforce this paradigm. US actions that were not linked clearly to some vital national interest have ended in disaster--Vietnam, Beirut and Somalia to name a few--while Desert

Storm's success may be linked to the US defending its vital national interests. The paradigm of national interests defined as power is a very useful means of assessing a nation's actions in a future environment.

Understanding geopolitics is also essential to forming concepts of national security and military strategy. Geopolitics and War: MacKinder's Philosophy of Power[24] provides an extensive examination of geopolitics as postulated by Sir Halford J. MacKinder, political geographer, director of the London School of Economics, and the father of the heartland theory of geopolitics. "MacKinder said that history should be read on a map. Maps can also point the way to the future. This is the essence of geopolitics."[25] MacKinder held that the inner core of Eurasia contained all the requirements for world domination. Control of this region, which is resource rich and independent of the sea for survival, yields command of the world.[26] The heartland's focus appears to be shifting from MacKinder's Eurocentric view to one that is Asia-centric due to the shift in world economic power. Major conflict appears to originate within MacKinder's heartland--two world wars for instance. Additionally, his theories and framework for analysis are important to the examination of geopolitical realities and national interests. This analysis lays the groundwork for understanding the US role in a future world environment.

The geopolitical situation is changing--end of the cold war, fall of the Soviet Union, economic shift to Asia, and the rise of China--and will continue to change. An examination of the role of great powers, their successes and failures, is also important to understanding the

challenge that confronts the US. Paul Kennedy's The Rise and Fall of the Great Powers[27] traces the role of the great powers throughout history. The destiny of most great powers, to whom falls the role of maintaining world stability, is not particularly fortuitous. The challenge is not to assume the mantle of the indispensable nation, precipitously expending national treasure to maintain stability or become involved where national interests are not clear.[28]

Security- and military-focused works are plentiful and provide a wide range of perspectives. Syndicated columnist and noted author Colonel (retired) Harry G. Summers in The New World Strategy: A Military Policy for America's Future[29] provides a thorough analysis of the strategic environment, warfighting, and makes policy recommendations and guidelines for the conduct of future American security and military strategy. Summer's proposition is summarized in his use of lines from T. S. Eliot's "Four Quarters:" "And the end of all our exploring/Will be to arrive where we started/And know the place for the first time."[30] He suggests that many of the current trends are ephemeral, not unlike counterinsurgency emphasis of the 1960's, and that there are constancies in military strategy.[31] Summers applies these constancies to the future environment and proposes ten commandments for future US military strategy. These commandments include: strengthen nuclear deterrence and shield; maintain deterrence through fear of US power based on real capabilities, not silver bullet notions of technology, and an understanding that harming the US will result in unacceptable consequences; focus on warfighting, with peacekeeping relegated to the periphery; and establish a publicly accepted national security

strategy.[32] These commandments are at odds with current policy and some concepts seeping from the QDR process. However, they are based on a thorough analysis, the long view of history, and are devoid of immediate political considerations or expediencies.

In contrast to Summers' embrace of Clausewitz's view of war as politics between states is historian Martin van Creveld's The Transformation of War. He presents a view of the future of warfare and by whom and how it should be waged that is diametrically opposed to Summers and Clausewitz. Professor van Creveld proposes that insurgency and transnational violence is the future of warfare. This ties into Kaplan's focus on the disintegrating third world. He states that "the kind of war that is based on the division between government, army, and people seems to be on its way out . . . the place of the state will be taken by warmaking organizations of a different type."[33] This proposition suggests a totally different focus for US military strategy.

The books and monographs of both the US Army War College's Strategic Studies Institute and the National Defense University's Institute for National Strategic Studies on RMA, dominant battle space awareness, and strategic visions are all very useful. Of particular note, from the US Army War College, are Dr. Earl H. Tilford's many works and in particular the previously referenced The Revolution in Military Affairs: Prospects and Cautions. The National Defense University (NDU) has published a series of RMA papers and books, with two providing a substantial utility. Martin C. Libicki's The Revolution in Military Affairs[34] is a conference report on the future strategic and operational challenges, competitors, and technology, and provides policy and

doctrinal recommendations. The NDU's book Dominant Battle Space Awareness,[35] edited by Stuart Johnson, provides a wide variety of thoughts on the implications of RMA on future warfighting.

This thesis, at its most basic level, is about change--to define it and determine how to exploit it. Dealing with change is as important to altering an organization as complex as the US military as is developing future forecasts, identifying technological trends, or understanding national security strategy. The long view and development of a strategy for how to anticipate, welcome, and integrate change are very important to this thesis and the issue of the RMA in general. The military is addressing the ramifications of change in many of the Army War College and National Defense University monographs mentioned above. In addition to the many service college publications, the article "To Change an Army" by General Donn Starry is an exceptional piece and should be required reading for anyone involved with changing their service or incorporating the RMA.[36] The business community also has a lot to offer in considering how to prepare an organization to exploit change. One excellent source is a recent Business Week article, "Strategic Planning,"[37] that outlines the lessons learned from business's previous strategic focus and how "big thinkers are back in corporate vogue."[38] Michael E. Porter, in "What is Strategy?,"[39] outlines how to change an organization in order to achieve competitive positioning relative to rivals. He dismisses organizational effectiveness as easily imitated by competitors. He advocates developing a strategy that changes the organization in unique ways so that it can perform similar functions in different ways.[40] The

implications of this approach for twenty-first century US defense strategy is to find those different ways of war, rather than look for efficiencies in the current methods of war making.

Military Technology and Its Application

Technological change is an essential part of the so-called RMA and is being pursued vigorously by all the military services. The works of Andrew Krepinevich and Martin Libiki are superb for stimulating thought on the implications of technology on the future of warfare. None of their papers, articles, or monographs recommend specific paths to modernization. They do outline potential capabilities and recommended competencies for DoD as a whole. Krepinevich's The Air Force In 2016[41] provides some specificity regarding this one service and its strategic and operational focus. Similarly, the NDU's 2015 addresses many of the competencies that the Armed Forces could possess beyond 2010. Sensitive subjects, such as altering the current roles and functions of the Armed Forces appear to be off-limits in most publications, except with Krepinevich. This general inadequacy harms the process, as an honest debate is not possible without some radical suggestions being available.

The reluctance of the authors cited here and others to provide specific recommendations on force structure and on roles and functions complicates the overall discussion of where the military should go with this so-called revolution. In reality there is no vision of a force structure to support Joint Vision 2010. Neither is there a vision of an RMA force beyond the notion of no "sunset" systems, an emphasis on a systems of systems, long-range precision strike, and war from afar.[42] The body of material is insufficient in the area of roles, functions and

mission, particularly on the part of the proponents of precision strike. Proposals are too general and fail to address changes to the basic functions of the military services.

Prescriptions for Change

Future force organizations and methods of operation, as manifested in the EMA and RMA forces that will be discussed in later chapters, will in great part reflect the various positions on military change. This wide range of directions for change and calls for action are adding to the impetus for transformation in the US way of war. This body of literature includes academic, civilian and military prescriptions as reflected in the following survey. This body of literature generally falls into two camps, one suggesting or advocating immediate and substantial change and the other proposing incremental change.

The Call for Substantial Change

As discussed in chapter 1, there are a number of authors who postulate substantial change, some more radical than others. The authors and works addressed below reflect a departure from the status quo, at a minimum, while others advocate radical or revolutionary change.

Andrew Krepinevich, of the Center for Strategic and Budgetary Analysis, has written extensively on the subject of military change and is a vocal proponent of a military revolution. While not prescriptive in detail, he advocates changes in the way the military approaches the business of war, and advocates substantial exploitation of technology.[43] He postulates that systems and organizations similar to those familiar

to present day military establishments will be superseded by "new, far more capable means and methods of warfare and . . . military organizations" derived from the information technology revolution.[44] In order to accomplish this, he advocates an end to "sunset systems," such as aircraft carriers, tanks, and perhaps bombers, as a drain on potential investment in new capabilities.[45] He champions "sunrise systems" that emphasize information dominance, long-range precision strike, space, stand off fire systems, simultaneous operations, and an end to service redundancy while increasing service competition and innovation.[46] Service roles and missions would very likely change within the parameters of his vision of change.

David Ochmanek, a former deputy assistant secretary of defense for strategy, views the future military environment as one of challenges and constraints on US force options. He also sees many of the same challenges that Krepinevich outlines and similar prescriptions, but sees the US constrained by its obligations as a great power.[47] He advocates a defense focus on theater air and missile defense, "smart weapons," air supremacy operations, and long-range precision strike.[48] He further states that "the need to maneuver . . . is greatly reduced . . . [and that] the brunt of short-term restructuring should occur in the Army's armored and mechanized divisions."[49] The failure to solve maneuver shortfalls in the face of superior fire systems in World War I resulted in stalemate. Discounting maneuver and embracing fires and defense hands the initiative to the opponent.

The National Defense University's 2015: Power and Progress provides one of the few government or military publications that provide

recommendations on policy and strategy. Conclusions from 2015 include that the US will remain engaged in the world, that war will still be a likely occurrence, though tilting towards defensive primacy, and that alliances will remain important.[50] Regarding force structure, the study recommends an emphasis on information based systems and a de-emphasis of platforms as the basis for force structure due to their vulnerability. "Long-Term capitalization of the armed forces should not concentrate on iterative improvement of large military platforms, organizations and operational concept of the past. The future . . . is to be able to see, understand and strike an enemy without giving him anything vital to exploit, corrupt or destroy."[51]

Edward N. Luttwak, a Center for Strategic and International Studies (CSIS) Senior Fellow, in "A Post Heroic Military Policy," proposes a change in the US military's strategic calculus, using proximity to combat and likelihood of casualties factors to derive a new force more usable as a national instrument of power.[52] He derides the theory of deterrence as lacking relevance in the emerging security environment, stating that "US military forces must once again be kept primarily for combat rather than for deterrent display."[53] The present way of war is no longer appropriate, and cost effectiveness must be addressed in terms of usability.[54] His ranking runs from long-range weapons being the most usable, to light Army and Marine formations being the least usable.[55] He admits that ground forces have utility, but sees forces and systems capable of "war from afar" as more usable instruments of power.[56]

Former assistant secretary of defense Richard Perle may be the most vocal advocate of substantial change. His remarks in "Defense Planning for the 21st Century,"[57] and elsewhere reflect an approach tied to and enamored with technology. He states that the US must "radically restructure our force by trading manpower for technology and increase by orders of magnitude the military productivity of a sharply . . . downsized force."[58] He advocates "troop reductions of 400,000 to 500,000 and said future forces should key on technology and be 'mobile, agile and effective.' . . . [and states that] The military establishment is larger than we need and larger than we can afford.'"[59] Like Luttwak, Perle sees long-range, precision weapons as the most usable force capability. Small and agile, technologically based forces that can hit targets with minimum risk to itself will save American force structure, allow those remaining forces to fight from a safe distance, and serve the US far better than any heavy mechanized force.[60]

An Advocacy of Incremental Change

At this juncture, there are few advocating that the military cling to the status quo, there are many that suggest that radical change is unnecessary or unwise. These authors and publications propose exploitation of emerging technology, but within a historically and strategically based approach. Some are more substantial than others, but they all propose evolutionary change.

While the Center for Strategic and International Studies' (CSIS) Foreign Policy Into the 21st Century is generally a policy-oriented publication, it does provide some guidelines for approaching military forces and capabilities in the twenty-first century. Robert Murray, a

former undersecretary of the Navy and Chair of the International Security Working Group for this study, advocates continued nuclear deterrence; expeditionary, deployable forces; appropriate presence in Europe and Asia; and a balanced approach to readiness, efficiency, and the cost of military forces.[61] This study does not espouse a particularly revolutionary approach to US military strategy, nonetheless, this group does recognize the importance of maintaining technological preeminence.[62] "R&D investment is needed to ensure technological superiority indefinitely."[63] However, this group does not suggest how to achieve this investment, given their previous support of readiness and presence.

Harry Summers' The New World Strategy, in addition to addressing US military strategy, also provides food for thought in the area of forces and modernization. As previously discussed, he proposes that there are constancies in military strategy[64] that suggest that the US should maintain many current capabilities and make incremental changes in others. Several of his commandments reinforce this interpretation, including: nuclear deterrence; deterrence; avoiding silver bullet technologies; and a focus on warfighting.

Finally, the official vision of the future US military is described in a series of joint and service publications including Joint Vision 2010, as previously discussed, Army Vision 2010,[65] Global Engagement,[66] and Forward . . . From the Sea.[67] Joint Vision 2010 provides an operational frame work for future military operations. The Army's Army Vision 2010 is likewise operationally focused. The Air Force's Global Engagement presents both operational and strategic

visions which may be at odds with both the CJCS and Army visions. At this point, the Navy has not published a document directly linked to Joint Vision 2010; however Forward . . . From the Sea, provides reasonable insight. While embracing to varying degrees the potential of the information revolution, these visions are based on existing forces, current or near term equipment, and incremental change to organizations and doctrine. These visions are evolutionary in their outlook and probable application. A detailed examination of these visions follows in chapter 6, so as to set the stage for development of an evolutionary force.

The positions discussed above only scratch the surface, but cover the gamut of possible actions. They are reflected in the two strategic approaches that are examined in this thesis. As can be seen, many of the authors advocate an embrace of technology and exploitation of long-range precision strike and "war from afar."[68] Joint Vision 2010 and its associated service visions and others take a slightly different tact. While some are more complete than others, none of these prescriptions for change, as identified in the introduction, address the entire issue historically, strategically, in terms of technology, or based on a strong assessment of the future.

Contributions to the Body of Knowledge

All factors of change in the future environment will impact on an evolutionary or revolutionary force's utility in the twenty-first century. The current body of knowledge addresses many of these factors of change and their implications for future US strategy and policy, but either in isolation or at the macro level. No one study ties all of

these factors together in a complete and specific package that outlines the probable environment, the threats contained in that environment, and what type of force is required to deter or defeat these threats. This issue begs for a capstone document that ties the various positions together in a coherent manner, providing a clear recommendation for consideration by the national leadership.

This paper's examination of the future environment, probable US interests in that environment, and force applicability to that future contributes to the body of knowledge in three ways. First, the synthesis forecast of the future will provide a realistic and probable environment, amalgamating points of continuity between the different studies and providing reasonable conclusions where continuity may be lacking. Further, this future environment will point to US interests and probable competitors. Second, competing force structures will be specified for evaluation. These evolutionary and revolutionary force designs will incorporate the potential of technology, trends in military requirements, and outline roles, functions, and missions. Last, this study will provide an assessment of each force's utility in a probable future environment, establishing what type of force best meets US national security needs in the early twenty-first century. If there is not a looming threat on the horizon, the revolution required may be minimal.[69]

CHAPTER 3

RESEARCH DESIGN

This thesis uses an interest based strategic model to derive a future defense strategy. Using a forecasted future environment, this thesis examines enduring US vital interests in that environment and derives points of conflict based on clashing interests between the US and probable competitors. These clashes or challenges determine defense requirements. Establishing who will challenge the US leads to discovery of what future warfare will look like. This discovery points to what the military will need to look like in order to win. This overview provides the strategic approach underlying the research and analysis conducted in this thesis.

This thesis uses a nesting of questions to answer the primary question of whether the US is on the correct path to modernization. This primary question focuses the research to answer four secondary questions. First, what is the probable future environment in the decade beyond 2010? Second, what would a Joint Vision 2010 force design look like? Third, what would a technologically based military force built around long-range precision strike assets and doctrine look like? Finally, do those forces meet the nation's needs in the probable future environment? Subsequent questions provide supporting information to the secondary and succeeding sets of questions. Answers to these follow-on questions either provide descriptive information to answer an

environmental or organizational question or provide yes no or maybe (requiring interpretation) answers.

The world environment serves as the basis for this entire thesis. Defining the future environment will identify threats to the US and what is probably required to counter them militarily. This thesis will develop a probable future using forecasts, military, civilian, scholarly, and commercial, to create a synthesis probable future environment. This study will answer basic questions for the decade beyond 2010, covering four axes. These axes are the social, economic, political, and security environments of seven world regions--North America, Russia and Eurasia, Europe, the Middle East and Southwest Asia, Greater Asia, Africa, and Latin America. The same questions address each region. What is the social and cultural environment? Where does the region's economic power reside, and what is its source? What is the political center of gravity and who maintains it? What are the interests of the political and military power broker? What are the interests of the US regionally and globally? What is the security environment, in terms of power, threats, and potentials for conflict? Where are US interests challenged, regionally or globally? What are the general worldwide and regional military trends--size, makeup, technological possibilities, and focus (internal or external)? Note that these general military trends will shape the RMA and Joint Vision forces. Seeking out continuity within the body of knowledge regarding trends, predictions, and forecasts will furnish the most probable answers to these questions. This synthesis forecast will provide a probable future tempered by the historical perspective of that region

based on Millennium, Diplomacy, and current events. For example, a highly adventurous China might be considered to be an unlikely portrayal given its historically inward focus and recent and current problems with holding its empire together. Probabilities will be assessed based on the frequency that the trend or forecast appears in the body of literature or on the historical frequency of that trend or action.

The second question establishes a probable organization and method of employment for a Joint Vision 2010 based force or EMA force. The Quadrennial Defense Review, underway as this is being written, may provide more focus on what a force designed to meet the vision of Joint Vision 2010 will look like. However, presently there is not an integrated, joint concept of what this evolutionary force should actually look like. As with the RMA force, there are numerous documents and studies that can provide sufficient insight into this question. In line with Joint Vision 2010, this force will generally reflect current roles, functions, and organizations, though some change is inevitable. The following questions will develop or confirm the design and doctrine of this force. What current systems, by service component, are programmed to be in service after 2010? What new systems currently or anticipated to be programmed will be part of each service after 2010? What current organizations or equivalents are anticipated, by each service, to exist just after 2010? For example, the Navy may postulate that aircraft carriers and carrier battle groups will still be utilized, only in slightly fewer numbers. Lastly, what changes to doctrine are anticipated to be in effect on or about 2010? Again, the frequency with which these forces, systems, and methods of operation is addressed will

serve as the basis on probability. This question area requires and will receive more attention and specificity as this area deals with existing forces and organizations, as compared to an RMA. This approach is taken because of the inertia that characterizes the present force and resistance to any meaningful change, and the relatively radical changes that may become apparent. It is evident that in the EMA force literature organizational and doctrinal change is limited above the tactical and operational level interface. Any suggested organization will resist this limitation.

The third question establishes a probable organization and method of employment for a technologically based military force built around long-range precision strike assets or an RMA force. There is no base force concept for this type of force. Studies do postulate possible near-term future capabilities and likely equipment sets, such as armed, unmanned aerial vehicles and smart cruise missiles. A review of those studies will answer the following questions. What probable long-range precision strike technologies might be fielded in the 2010 to 2020 time frame? How might these technologies and capabilities be employed? What is a feasible operational organization for these technologies and capabilities? Which is the most likely dimension--sea, air, land, space--in which these technologies and capabilities will operate? What impact do these organizations and operating dimensions have for roles and functions? As an example if the force generally operates from space, in the air or from the sea, then the Army may no longer have theater air defense or deep strike capabilities. Trends in technology, employment and or organization will be accepted as probable and used to

build this force based on the frequency of their appearance in the literature on the subject. In cases where frequency is not clear, subjective insight will fill in the blanks. In addressing the RMA force, there is a lack of specificity in terms of organizations and doctrine. The force description that will be developed will attempt to be more specific than much of the literature, but will not receive the same attention as the EMA force. This is in part due to the general nature of the supporting literature, and in part due to the radical nature of the proposal. An RMA approach so tears at the fabric of the present force that it does not attack any one service's traditions and reasons for being; it attacks them all.

The last question assesses the utility of these two forces in meeting the nation's needs in a probable future environment. An assessment of each force will be made as to its general capabilities against the extremes of probable, potential competitors: a regional near peer competitor and a first wave force in an operations other than war (OOTW) environment. Use of these two conflict environments will establish the utility of the RMA and EMA forces across the spectrum of conflict. Then each force will be assessed against the most likely threats, given probable US interests and its ability or inability to avoid conflict. Criteria for assessment are the ability of each force to achieve: deterrence, compellence, and decisive victory. These criteria are the most relevant and of primary importance: deterrence is the first role of each armed service; compellence is essential to diplomacy;[1] and decisive victory is the standard expected by the American public.[2] The principles of war, as a time-tested standard for

operational effectiveness, and the Joint Vision 2010 goal of full-spectrum dominance and its associated operational concepts of dominant maneuver, precision engagement, focused logistics, and full-dimensional protection[3] will figure throughout the assessment of each force. This investigation builds an assessment of the more effective force by answering a series of more basic questions. What is deterrence? What is decisive victory? What are the principles of war and what do they mean beyond 2010? What do the Joint Vision characteristics mean? What are peer, regional, and niche competitors? What does a first wave force constitute? Where is the most likely threat to US interests, and how does each force counter that threat? In each case a judgment must be made based on the force's ability to support the Nation's interests as compared against the assessment criteria.

For each secondary question, the environment, force design and operation, and force utility, the answers of their subordinate questions feed the answer to the secondary questions. Judgment is required in all cases as to the probability or viability of each answer. The answers to the secondary questions provide the parameters for assessment of the Nation's security needs in the next twenty-plus years. This assessment will provide reasoned direction for the US military to take in its pursuit of a viable force for the twenty-first century. The resulting direction will have its basis in a probable, more-right-than-wrong forecast. This basis in probability will provide sufficient flexibility for easily made corrections as the future becomes clearer in the rush towards it.

CHAPTER 4

THE FUTURE ENVIRONMENT, AMERICAN INTERESTS, AND POTENTIAL FOR CONFLICT

> The past is done. Finished. The "future" does not exist. It is created micro-second by micro-second by every living being and thing in the universe.[1]
>
> Dr. Edward Teller, Space Cast 2020

Introduction: Describing the Future

The Future Environment and the Future Military

The future environment frames the requirements for any future military organization. Military strategy and supporting forces are derived from a national strategy that seeks to deal with the world environment. Any military approach to the future must be clearly linked to a probable future environment and corresponding national security strategy.

Military forces have changed as the environment and challenges to national interests have changed. For example, prior to World War II the US relied on a large Navy and a small Army, based on an assessment of the threats to US interests.[2] The Nation was isolated by two large oceans, the immediate threat was perceived to be naval, ground force operations were confined to the small wars of the Western Hemisphere and the Philippines, and time was available to mobilize a large Army.[3] World War II effected a substantial change in the environment and

challenges to US interests, resulting in a military of close to ten million, with new organizations and capabilities.[4] More recently, the Soviet Union's collapse altered the paradigm of challenge to US interests. This most recent shift has produced related changes in the Armed Forces, as evidenced by the development of the Base Force and followed by the Bottom Up Review.

The same will be true in the future. Changes in the world environment will compel changes in the United States' requirements of the Armed Forces and how those forces will accomplish those requirements. In order to determine those requirements, and to develop a viable strategy to meet those requirements, the environment must be defined.

Methodology

A useful strategy is one that springs ahead of events. Describing the environment that contains those events--the future, a market, a region--is key to developing a strategy that best meets the projected environment's challenges. In the case of this thesis the environment in question is the future. Developing an appropriate, probable characterization of the future is essential to evaluating the potential of RMA and EMA forces to meet effectively the needs of the US.

There are numerous ways to describe the future. One method is prediction, where analysts look to provide certainty that events will take place or conditions will exist.[5] This manner of describing the future has utility in the short term when variables are less subject to change. Prediction is a zero sum game, it is either right or wrong. Prediction is of questionable long-term utility where most factors are

more likely to shift and change. Another way of depicting the future is to provide scenarios that portray various possible outcomes or environments that stimulate thought and planning for the future. However, a scenario-based approach to the future must connect with the user. Scenarios like some in the USAF's Space Cast 2020 and 2025 are indefinite to the present and future environments, may not be linked to existing actors, and may appear to be fanciful.[6] These potential shortfalls can cause skepticism and point to what Dutch Shell strategic planner Pierre Wack describes as the "key problem with scenario planning, [that] the interface of scenarios and decision makers is neglected or ignored."[7] The third prominent method of describing the future is the use of forecasting. This method provides a probability based depiction of the future based on a projection of trends versus the certainty of a prediction based on trends. "This difference is important . . . since everyone can predict the future, but no one can predict the future accurately, except by chance."[8] Prediction locks the user into one course of action based on the prediction being right or wrong. Forecasting presents probabilities and should present the likelihood of outcomes that are contrary to the most probable outcome. Scenarios provide specific outcomes that can be planned against. Scenarios are useful when taken in conjunction with a forecasted future environment. They allow possible variations to be investigated and contingencies to be anticipated and planned for.

This chapter will utilize the forecast method to present a probable future environment. This environment is based on a synthesis of the views of a variety of futurists and scholars and on a projection

of trends identified in a variety of sources, all tempered by history. This method of forming a probable future can also be described as a modified Delphi technique. The Delphi method, pioneered by RAND Corporation, involves surveying a number of scholars on a particular subject, searching for consensus. In the modified Delphi technique, used in this chapter, the scholars works are surveyed for trends and continuity to answer questions about the future.[9] The judgment of the author also figures heavily. This thesis embraces forecast methodology and seeks to synthesize the judgments of a multitude of scholars. However, describing the future is not so much an exercise in probabilities as it is an invention based on value judgments.[10]

A good forecast must have certain components in order to be credible. The Futurist, magazine of the World Future Society, lists ten elements to look for: the author--credentials, bias; method--Delphi, scenario, trend analysis; assumptions; time horizon; the forecasts--what are the specific projections; trigger events--guideposts to measure the veracity of the forecast; key capabilities--new technology or capabilities that are projected; missing items--overlooked social forces, technologies, new actors; implications--what does it mean; and evaluation--does it hang together.[11] These components serve as a checklist to ensure the viability of the forecasts contained in this chapter.

The forecast outlined here describes a probable environment in the decade beyond 2010. In addition to reflecting the elements outlined in the preceding paragraph, this chapter will describe the decade beyond 2010 on four axes--social, economic, political, and security; within

seven regions--North America, Russia and Eurasia, Europe, the Middle East and Southwest Asia, Asia, Africa, and Latin America. It will establish US interests in that environment and then identify potential sources and points of conflict. This future environment will serve as the battle space for an evaluation of the utility of EMA and RMA forces. The bottom line is that a forecast is the most usable means of describing the future, providing a familiar and probable environment. The US is at a minimum a global power with global interests. Hence any US military force not based on a strategy corresponding to the world situation may be at best inappropriate, or at worst ineffective.

Assumptions

The assumptions made in establishing this future environment generally follow those of the Army War College's Charles Taylor. Those assumptions are: there is a very low probability of general war between the US and any peer competitor; a worldwide economic depression is unlikely; nor is a probable scientific or technological breakthrough on the horizon that allows one nation total domination over all others.[12] An added assumption deals with the world view of the US: the US, as the primary great power, will most likely remain sufficiently engaged in the world to prevent domination of the Persian Gulf by either a resurgent Iraq or a rising Iran, in the years leading up to the period of 2010 to 2020.[13]

Trends

All variables are not subject to changes so basic that every aspect of the future is rendered unpredictable. There are a number of

outcomes that are enduring and observable over time and space.[14] These outcomes are trends that shape the future environment. The trends below reflect continuity within major studies, the judgment of the author, and are important to forming the future contained in this chapter.

Social Axis

Global population growth through 2020 probably will not substantially decline, but will start to slow. World population may be thirty percent larger by 2010, at about 7.2 billion, and could increase another 3 billion by 2025.[15] Population growth is and will be largest in the developing world--what is presently referred to as the third world--where it can be least supported. This trend will result in localized pressures on resources and may spawn international and intranational conflict. International conflict may be characterized by the Tofflers' second wave wars for resources, as depicted in War and Antiwar.[16] Intranational conflict may be best described by Kaplan's discussion of the disintegration of ungovernable third world nations in The Ends of the Earth[17] Competition for arable land, fresh water, housing, and economic viability may be potential sources of conflict given these nations' large populations and present connections to crime syndicates, drug cartels, and violence. US involvement will be limited, particularly regarding wars in Africa, to assistance and peacekeeping. Additionally, these nations' abilities to sustain conflict are suspect.[18] However, localized or regional anarchy may be possible.[19]

World power, political and economic, is becoming dispersed. Taylor describes it as a "devolution of power."[20] The US will remain the world's primary great power--first among several equals--but, its

clout will be restrained in a multipolar world of diffused power.[21] These trends have corresponding impacts on political and security trends.

Economic Axis

Increasing economic interdependence should expand free market economies and support a rise in economic growth.[22] Multinational corporations will continue to blur the distinction between national economies, possibly usurping some nation states' influence.[23] This trend impacts political trends.

Economic stratification will follow the Tofflers' three waves--post-industrial information based economies (third wave), industrial economies (second wave), and agrarian economies (first wave). Stratification within these waves is likely. This stratification is best characterized as: third-information/post industrial nations and economies; second-transitional and industrial nations and economies; and first-emerging/pre-industrial nations and economies.[24] This stratification impacts social, political, and security trends.

Reliance on, and demand for, petroleum and other fossil fuels will continue. Despite the attractiveness and rapid development of improved battery technology and alternative energy sources such as wind, solar, and geothermal, the world will still be a slave to petroleum and fossil fuels for energy, plastics, synthetic fibers, chemicals, and fertilizers. An oil crisis is unlikely due to a historic link between demand and exploration and supply. However, nuclear power will increase both in terms of use and abundance.[25]

Science and technological development will increase with greater velocity in every conceivable area. Access to technology will approach uniformity in almost all nations. The ability to act on that technology, however, will not necessarily be uniform. Computer technology will become integrated to the point that its existence may be transparent to the user. Access to technology and space (communications, imagery, and navigation) in particular will no longer be confined to a select few, but will include most of the world through direct access and control or subscription to commercial services.[26] This trend impacts social and security trends.

Political Axis

Sociopolitical changes will uniformly impact developing and emerging economic states.[27] To sustain economic growth, nations require a more educated work force. This necessary education results in a more aware populace who will in turn demand greater participation in their government. The developments in the Republic of Korea, Chile, Argentina and to a lesser degree South Africa are illustrative of this trend. This trend will be a source of internal conflict in countries with emerging economies and an increasingly educated populace such as China.[28] This trend impacts social and security trends.

Security Axis

There is a very low probability of a general war between a peer competitor and the United States. Indeed, the probable proliferation of nuclear weapons will serve to limit conflict between peer and regional competitors.[29] However, it is highly probable that intranational or

civil wars will increase. These civil wars may well reflect Kaplan's conception of the disintegration of ungovernable third world nations due to overpopulation, perceptions of economic disparity, globalization of crime, ethnic hatred, and an inability of corrupt or impotent governments to support or control these populations.[30]

Weapons proliferation will increase. Most Western militaries will be substantially smaller (perhaps half as large) after a period of declining resources and steady, in cases startling, reduction. Other parts of the world are expanding their militaries and arming at a rapid rate, particularly in Asia.[31] The newly industrialized world will probably possess weapons and militaries patterned after or designed to counter the "hero" of the 1990s--the US military of Desert Storm.[32] Emergence of a true peer competitor to the US is unlikely in the first quarter of the twenty-first century, but several regional competitors will be capable of challenging the US within their areas of influence.[33] Another lesson of Desert Storm--the Indian Foreign Minister's comment that "One doesn't fight the US without Nuclear Weapons," will be fulfilled by an increase (from the current five to seven to over twenty) in nuclear armed nations.[34]

Increase in the globalization of crime is likely to continue unabated, despite current recognition of and plans to confront the problem. This is due to a number of factors including first wave population growth, government corruption within the first and second wave nations, the continued growth and profitability of the drug trade, and the rise of ungovernable nations.[35]

The World Environment 2010 to 2020

Overview

The seven regions, and the social, economic, political, and security axes within them, respond differently within the general framework of limited war, economic and energy stability, and technological parity described in this chapter's assumptions. The same is true regarding those trends identified and described above. Different reactions are in part due to cultural factors and a region's present position or starting point. This section provides a synopsis of the social, economic, political, and security landscapes in and around 2020 based on the world's response to these trends. Each landscape depiction will be followed by a more specific regional assessment. Omission of a region or nation in this overview reflects its relative lack of impact within that particular landscape.[36]

The Social Landscape

By 2020, the worldwide social landscape may be characterized by a marked division between the haves and the have-nots. The have-nots will most likely be confined to Africa, the North Indian Sub-Continent and some parts of Asia, and Central America. But China (if power transition results in another "cultural revolution"), Brazil, Bolivia, the north coast of South America, and perhaps Peru potentially are vessels of, in most cases continued, extreme income disparity, hardship, want and need.

The world should find itself divided into three economic categories that will correspond closely to the social position of each nation, the potential for advancement, and the general satisfaction of the people.[37] Proliferation of technology will allow those who are at

the bottom to know they are. Unlike the situation of the 1960s and 1970s, where in Thailand for example, people were poor, but were basically content with their full bellies and generally unaware of the world at large, today economic and hence social position is obvious. China is a large example with its one-hundred million migrants who can be found in the special economic zones looking to increase their station.[38]

Third wave nations will assist those first wave nations that have the best chance of survival or have something to offer, but will be loath to become involved in those on the verge of anarchy.[39] Ethnic strife will continue to plague much of the first wave world, and will not be entirely eliminated in the former East Block, particularly in the Balkans.[40] Foreign assistance will continue to decrease, but will be replaced by a proxy--economic investment and development encouraged by Third Wave governments.

Asia is the center of the world, with an unchallenged economic boom fueling substantial development and freedoms.[41] Nations and cultures will resist the continued invasion of Western culture with limited success.[42]

The Economic Landscape

The economic landscape will probably be characterized by continued worldwide growth, including in Russia (despite its current six year down turn in industrial output). This landscape, as stated previously, reflects three economic divisions. The importance and influence of the multinational corporation (MNC) will be unquestioned, but will probably not supplant nation states as primary economic actors due to a lack of

control of the other instruments of political power--diplomatic, information, and military. Indeed, nations may often use those other instruments to support the interests of an MNC(s).

Asia will be the world's economic "center of the universe." China most likely will surpass Japan as the second largest economy in the world. While China may possess the second largest economy, it is likely that China will suffer from instances of the previously described Social Landscape of the haves (east and south-east) and have-nots (north and west) due to social, cultural, and geographic constraints, poor government management and political change. Hong Kong will most likely survive Beijing's attempts to impose too much control and will emerge as the economic center of China.[43] While watched closely by both China and Japan, a reunified Korea will be unable to immediately challenge either nation due to the overwhelming needs of the former North. Despite this, the reunified Korea will be an emerging competitor to Japan, and a source of conflict for both Japan and China. Japan will have fueled its own "decline" with its investment in China, and will slip behind China in gross national and domestic product, but will probably be the richest economy in terms of per capita income.[44]

North America will still be the largest and most prosperous region in the world, with Mexico having overcome its severest problems about midway through the next decade. The United States economy will fully realize the potential of the information age and will just hold onto its position as the world's largest and dominant economy.[45]

Russia, despite a decade of rampant corruption and inefficiency, will probably stabilize with substantial assistance from the West.

Though Russia still will not be a full partner and participant with the major economic powers, economic development should fuel support for a freer market and the continued development of a Russian democracy.[46]

The European Union (EU), including much of the former East Block, will still be working to emerge as an integrated economic and political entity. It is doubtful that the EU will be able to overcome hundreds of years of nationalism, distrust and notions of sovereignty. Taken as a whole, Europe may well be the largest economy; however, socialism and a lack of unity will prevent this entity from realizing its full potential.[47]

A surprise economic success will be India. With a well-educated population and democratic tradition, India will emerge as a rising economic star. Unfortunately, India's success is unlikely to extend to its neighbors.[48]

The Middle East's economy will still be tied to petroleum. The emergence of strong economies outside of the oil producing region is unlikely. The peace process may have the intended consequence of raising the status of most non-oil producing nations due to intraregional trade, but that remains to be seen with the current Israeli-Palestinian problems.[49]

The Political Landscape

The world will be dominated by third wave nations in a multipolar world with the United States first among several not so equal peers. Neither China, Russia, the EU, nor any other nation or block (Japan, India, ASEAN, etc.) will be able overcome its own internal problems sufficiently so as to challenge the US directly. The continued increase

in free market economies will result in a growth of representative forms of government; not necessarily on the US model, but similar. Regionally and culturally distinct democratic institutions will follow the development of capitalist economies in Asia and South America (South Korea is a transition model).[50] The ability of the US to control events and influence the actions of other nations will decrease with the US economy's decrease in size relative to other nations and its increasing dependence on other nations. Other factors contributing to a reduction in US power will include: the growth of China's economy; growth in various forms of representative governments decreasing the uniqueness of America and its missionary like promotion of liberal democracy; the decrease in size of the US military; and the proliferation of information technology and arms. Economics, more than any other instrument of national power, will decide the power and position of influence that nations will hold.[51]

Asia will be the focus of the political landscape, just as with the economic landscape.[52] China, with its growing economy, will dominate Asia. It will do so indirectly due to its geographic size and position and large economy; and directly as it demands its due as a great power.[53] China's power transfer is underway now and should be peaceful relative to its neighbors and the region. Moderation, comparative to its modern history, is a recent trend given continued economic development,[54] a historically inward focus, and the possible "swallowing" of mainland China by Hong Kong and Taiwan.[55] However, China will demand respect as a great power. This is due to China's economic and military mass, and its overcoming of its recent period of

humiliation (from 1800 to 1985) relative to its thousand year history of being the "center of the universe."[56] This return to great power status will be a difficult issue for the international community.[57]

Russia should stabilize as a nation, and will probably see several peaceful changes of power. It will not be a full partner yet, with the east or west, and will have significant problems with its internal minorities, as well as with the Russian minority and nations of the "near abroad," or former Soviet states.[58] Balancing moral principle against pragmatic interests may well be the most difficult issue in dealing with Russia, particularly in terms of its former empire.

The European Union is still emerging as a united political and economic entity. Germany will probably dominate the European political scene. Britain's position will change little. France may find itself limited due to its economic position.[59] Most, former East European nations are now in the EU fold, and doing reasonably well, though ethnic strife will still be a problem.[60]

The Security Landscape

Due to the diffusion of power, the security landscape, like the political landscape, will be multipolar and characterized by bilateral arrangements (save NATO) and ad hoc coalitions.[61] Even the US may find it difficult to form coalitions and hold together existing security relationships. As covered in the security trends discussion, peer competitors will be unlikely; though China and India have potential, as does Russia, if an economic upturn occurs in the next five years. However, most nations of any real peer consequence (excepting China) are either in a slump (Russia and former Soviet states), or are rapidly

reducing their forces while modernizing to an extent (NATO). Military spending and force structure decreases in the West, and in Russia. Most of Asia, China, Japan and Korea in particular, is not reducing forces or spending. Spending will continue at present rates or increase in Asia and the Middle East.[62] It appears that former allies will be less reliable as economic interest supplants unity against a common foe.[63] A multipolar world diffuses a sense of shared interest and common threat. Economic interdependence and free market expansion may assist in minimizing regional conflict in Asia (except over sovereignty issues concerning China) and South America. However, Asia "would appear to be the most likely geographic region for revolutionary military competition."[64] The Middle East possesses two security challenges, potential hegemony in the Gulf and the rise of a radical Islamic state in place of one of the present moderate Gulf or Mediterranean states.[65] Those countries with highly sought-after resources, but without free market economies, may well be the twenty-first century's rogue states.[66] The future environment may require the US to act unilaterally if most other nations continue to decrease their military capability, and withdraw from security agreements.[67]

The future security landscape may have a useful analogy in the balance of power relationship in Europe from the mid 1600s until the end of World War II. Henry Kissinger writes, "The only examples of functioning balance-of-power systems were among the city-states of ancient Greece and Renaissance Italy, and the European state system which arose out of the Peace of Westphalia 1648. The distinguishing feature of these systems was to elevate a fact of life--the existence of

a number of states of substantially equal strength--into a guiding principle of world order."[68]

The Future By Region

A survey of the future world environment provides a global sense for where the world is heading. However, each region reacts differently to the environment resulting from the assumptions and trends identified in this study. These differences can be subtle or substantial. Regardless, it is important to understand the future from a regional as well as global perspective. US national and regional interests differ by region and certainly may be challenged differently within each region. Each region cannot be forced into the same one world mold without problematic or even disastrous consequences. This section seeks to preclude this problem by describing the future environment for the world's major regions.

North America

North America's environment probably will be the least altered in the world. The two largest challenges to the region's prosperity and stability, Mexico's political instability and economic malaise and the Quebec separatist movement should be resolved favorably. In particular, Mexico will require a great deal of investment and quiet US and Canadian involvement over the next decade to realize reasonable growth and stability.[69]

This region will be the single largest economic trading block. The North American Free Trade Agreement (NAFTA) should prove successful for the US, Canada, and Mexico, and will be extended south into Latin

America, complementing, but not completely replacing MERCUSOR, the South American regional trade block.[70] This linking of the entire hemisphere will strengthen all the Americas in their dealings with the rest of the world, and in particular the Pacific Rim.[71]

The US will be the primary great world power, but no longer a superpower with the connotation of an all powerful, indispensable nation. The US has global economic and security interests and the ability to influence the world across the spectrum of national power, but will be unable and uninterested in being the world's "superpower." Canada's position will not change markedly, and the Quebec question should be settled without disintegration of the nation. Mexico still will be NAFTA's weak partner. However, continuing ties to the US and the gradual hispanicization of the US will strengthen Mexico.[72] There will still be emigration questions and trade disputes. There are no real security concerns, except continuing, though less rampant (due to improving economic conditions), drug trafficking from and through Mexico.

Russia and Eurasia

The primary issue with Russia is security. This includes both their security and the rest of the world's as a whole, if Russia became a threat again. Russia as a global threat is unlikely, but it is possible along its border, particularly in Asia,[73] and within the former Soviet Union. A resurgent Russia or a revisionist Russia, has the greatest potential to be a peer competitor due to its existing defense infrastructure. Re-emergence as a great power requires an economic miracle of sorts,[74] or a takeover by a hard-line regime. Foreign

military sales, economic recovery, espionage, and exploitation of Siberian resources have the potential to allow Russia to exploit the RMT and RMA to the extent where they can challenge the US.[75] This exploitation is not necessarily focused on overall sophistication, but certainly qualitative improvement of their massive military could prove to be a challenge. Russia's global nuclear capability changes the equation for our dealings there, unlike any other regional or possible peer competitor. Without an economic turnaround, a revisionist Russian peer competitor would be a dangerous, but unsustainable foe, given the Russian Army's present morass.[76] Security concerns for Russia continue to include the US channeling its "superpower" status into world hegemony, possible reemergence of a bipolar world with a China-US confrontation, Russia's southern border with the Muslim world, and NATO expansion.[77]

These external concerns will be difficult for Russia to act on due to a necessarily inward focus. With its current myriad of internal political and economic problems, ranging from six years of industrial decline, corruption (even a linkage of criminal and government and military officials), and the "absence of . . . coherent government institutions,"[78] Russia will have to look inward to recover. Distraction with great power games will only prolong the arduous change to a free market and eventual economic recovery. The long-term outlook is positive,[79] but that does not mean twenty-five years without substantial difficulty and possible confrontation.

The Russia beyond 2010 will probably occupy the same geographic position, but may have absorbed Belarus. Despite its internal focus,

Russia will find itself, like the rest of the world, facing economically to the east towards the Pacific Rim and facing both east and west politically and militarily. Raw materials and energy exports from eastern Russia will link it closely with the growing China, a reunified Korea, and Japan.[80] Russia will also find itself behind China economically, which will cause tensions. However, economic self-interest will dictate closer ties, perhaps driving Russia away from a Eurocentric focus and changing the current relationship with the US.

Europe

Europe will still be divided between east and west, and within the East it will be divided between north and south.[81] Ethnic clashes will be an increasing problem. Clashes are prevalent between Europeans and emigrants and expatriates from the Middle East and North Africa, and between east and west Europeans. The eastern North is focused on becoming part of the West's economic and security apparatus. This will be incomplete, perhaps only in its initial stages, due to uneven economic development, ethnic conflict and Russian resistance.[82] The existence of representative democratic traditions in western Europe and parts of the east will serve to temper internal conflict, save for the southern tier.[83] The EU has yet to get its collective act together, and it is doubtful that thirty years (looking beyond 2010) of cooperation will smooth over sufficiently several centuries of cultural and national conflict, mistrust, and nationalism.[84]

The EU will be a partial world economic and political competitor to both the US and Japan. This potential is assessed as partial due to their share of world GDP slipping from third to fourth behind the US,

China, and Japan and the dependence of Europe on the US for unifying leadership.[85]

The Middle East and Southwest Asia

It is highly unlikely that the Middle East will achieve unity, regional prosperity, or collective security. This is due in large part to the lack of a representative government tradition in the region, coupled with the challenges of religious fundamentalism, and religious and cultural conflict between the Arab majority and Israel and the West.[86] The regional stability situation, or rather a continued lack of stability, will dictate continued US involvement in the Gulf and in the Arab-Israel peace process.[87] Without stability the regional economic outlook is poor except for the oil producing states.[88] However, the oil producers will find it more challenging to support their social welfare states given their increasing expenditures for security and search of alternative sources of income.[89]

In the Gulf region, Iran currently appears to be and should remain the most dangerous challenger to stability. Iran has and is working to improve an increasing military capability.[90] As a regional hegemon, Iran will work to project influence over the Gulf. Its focus should be, and probably will be, on intimidation of its neighbors and obtaining a capacity for control of the Straits of Hormuz.[91] Iran probably will not prosecute, nor could they win, a classic land war against Iraq. This is for several reasons. Iran may not graduate to that level; their land warfare defense procurement is more directed towards recovering from their last war with Iraq.[92] The US could not let Iran gain hegemony over the Gulf any more than Iraq was allowed to control Kuwait and

twenty percent of the world's oil reserves.[93] Also, while a country may gain technology or military potential, that does not mean they have the ability to act on it--Iraq is a very clear and recent illustration of having all the pieces and being unable to put them together. Iran's population and position almost demand that it challenge the US and the Gulf Cooperation Council for control of the Gulf.[94]

Iraq is a manageable challenger. Despite contentions, by Michael Eisenstadt of the Washington Institute for Near East Policy and others,[95] that Iraq poses the greater long-term threat, Iraq probably will not escape continued scrutiny and containment over the next decade. Containment can only reduce Iraq's military potential, setting back any designs it may have on regional hegemony. Of course miscalculation of Iraq's long-term intentions or possible rehabilitation may alter this assessment. Iraq's oil revenue potential and present military size could result in a resurgent Iraq that has learned from its past mistakes.

Another regional concern is that Iran may successfully form a pan-Islamic union with Islamic former Soviet states--the "Stan" brothers--Kazakstan, Turkestan, etc. This union provides control of or influence over more energy reserves. Any union of these states will bring Russia into the mix. Additionally, these have been historically repressed, but proud peoples (the Mongol conqueror Tamerlane hails from the eastern part of this region) who may well respond to the idea of wielding some influence over others.[96] This region is within the Russian sphere of influence. Direct US interests are limited. Engagement by Turkey, taking the general Sunni population of this region into account (Iran is

Shiite), with Russia's approval or cooperation, can easily counter any Iranian designs on the region.

The last significant concern for US interests in the Middle East--in the Gulf or the *Levant*--is the rise of radical Islamic fundamentalism.[97] Several friendly nations are experiencing problems now (Egypt with the Moslem brotherhood, Saudi Arabia, Morocco, Tunisia, and Algeria) and will probably increase over time. US presence and involvement may become necessary to ensure the viability of governments friendly to US interests in the region.

Greater Asia

Greater Asia will be the center of world attention. Economics and pursuit of prosperity are the primary forces linking Asian nations now as the boom continues. As security trends indicate, arms build ups will continue, but regional forums (such as the Association of South East Asian Nations (ASEAN) and the ASEAN Regional Forum (ARF) that has US and EU participation) and economic and political engagement provide the best chance for continued development and conflict management.[98] Economic access to this boom region, regional stability and increased resource consumption will concern the entire world. There is cause for both confidence and concern in this region. While this section focuses on those nations with the greatest power potential, the entire Pacific and Indian ocean regions possess vast economic potential.

China has the potential to be a worldwide economic competitor.[99] China will be a regional hegemon primarily politically and economically, but also militarily.[100] Historically, China has been a nation and culture that has been inwardly focused. This inward focus is

characterized as a "middle kingdom" complex. China has substantial internal pressures that may preclude substantial military adventures external to its borders. China has underlying problems with a diverse population and internal political and economic problems.[101] Increasingly independent economic zones in the Shanghai, Hong Kong, and Guangdong regions are also a challenge. Given these national challenges, China will require significant effort and focus just to maintain its present physical form and sustain development.[102] China has the sheer mass to throw its weight around, but the cost to China in terms of regional economic stability may be too high.[103] Even so, the People's Liberation Army (PLA) plans to reduce and modernize its armed forces. This is understandable, but its resulting size will provide the wherewithal to demand great power status within the region and to challenge the US where interests diverge or clash.[104] Modernization includes development of a ten to twenty division force with capabilities equivalent to those of the US force of Desert Storm, a regional power projection capability, and a limited "blue water" navy with an eye towards the Spratly's and possibly the Indian Ocean.[105]

There are several potential points of external conflict. The Paracel and Spratly Islands could come under direct Chinese control that restricts freedom of navigation and provides exclusive control of the oil and mineral potential, should exploitation technology become available.[106] Conflict between China and the Philippines, or Taiwan, or Vietnam, or Malaysia, may erupt over this area. Forced reunification of Taiwan is the most dangerous (it is doubtful that Taiwan will be absorbed by China in the next thirty years, fifty perhaps), particularly

if Taiwan challenges the current status quo by trying to declare independence.[107] China's limited global and moderate regional nuclear capability allows her to deflect the US to an extent and exercise forceful regional influence. Regardless, economics will be the primary force in Asia, including in China.[108]

Japan's economic situation and potential problems have been covered at several points previously. However, a brief summation is useful. As stated in the economic overview, Japan will have slipped from the world's second largest economy to third, behind China. The prosperity of Japan is to be very likely second to none, as both the US and Chinese populations will far exceed that of Japan. Due to this prosperity, Japan's influence--due to economic investment in the greater Asian region, increased international participation, and its potential for consumption--will increase. Japan will most likely be the first new permanent member of the UN Security Council.[109] Japan will continue to seek a particular role in the world; increasing due to its economic influence, yet subdued due to its still recent World War II history. Defensive improvements in the Japanese Self Defense Force will maintain a limited blue-water naval capability and a first class land based air force. Maintaining a security relationship with Japan will be essential to preserving stability in the region.[110] Japan will both engage and feel challenged by China, a reunified Korea, and possibly India.

Korea will continue to be important, but not due to its present security situation. Korea will probably be reunified due to the implosion of North Korea.[111] An implosion will probably require more than three years, and will most likely involve some limited conflict on

the peninsula. This will have a great impact on Asia, and on any assessment of either China and Japan. If the implosion occurs around 2000, a unified Korea, with twenty years to solidify its position, could be a substantial economic and political force by 2020.[112] More likely Korea will be an emerging challenger to both China or Japan in 2020. This possible outcome could significantly change the equation in Asia.[113] Both China and Japan are content with the present status quo regarding Korea.[114] China will be hostile to a unified Korea, providing another potential source of regional conflict with US involvement. A unified Korea places an Asian democracy right on China's border and has the potential to influence Mongolia, making China very uncomfortable.[115] Japan would be hostile to the unified Korea that has consolidated itself internally. The Japanese are both cultural and economic rivals of Korea. An economically viable unified Korea can press Japan for regional and world economic influence. South Korea took 5 percent of the US car market away from the Japanese; long term a unified Korea is capable of far more. This may result in a military resurgence in Japan, economic warfare, and potential conflict if these two regional competitors cannot reach a rapprochement. Despite the fact that both Japan and Korea have democratic traditions spanning fifty-plus years, their underlying cultural conflicts and history of hatred may prove wrong the axiom that democracies do not fight each other.

India, and South Asia will follow, has great potential. As discussed in the economic overview, India is a rising economic power house. With the world's second largest population, army, and market, India has great power and economic potential. India looks to become a

great power--establishing economic associations, increasing its navy, and seeking a permanent seat on the UN Security Council--with world acceptance as the dominant power in the Indian Ocean.[116] Barring resurgent Hindu fundamentalism or increased ethnic strife, India will be leading the second wave of emerging economies,[117] pushing into the top ten world economies.

Africa

Africa embodies Kaplan's concept of failed states.[118] Only a handful of nations have the potential to do reasonably well, but none will succeed a point of world consequence.[119] South Africa has the potential to do good things for itself, and for the region if it does not collapse into a series of tribal groupings, or run off the technocrats and white minority in the search for justice.[120] Namibia's apparent success with white and black African relations and development should foreshadow South Africa's future. Mineral wealth has not played a significant role in lifting most of the continent out of disaster, and it is doubtful they will in the next thirty years.[121] Extraregional conflict and US involvement in the past twenty to thirty years was driven more by US-USSR competition than a need or desire to secure any resource found there. For this reason, it is doubtful third wave nations will involve themselves in African conflict or provide substantial investment.

Latin America

Latin America requires consistent attention, but not constant crisis management.[122] This region will likely fall further under the

shadow of its northern neighbor. However, membership of the larger nations (Chile, Brazil, Argentina, and probably Venezuela) in some sort of NAFTA type arrangement will strengthen the region's economic position. This region will constitute the largest trading block for the US; there are trends pointing towards inter-hemisphere trade overwhelming any other trading relationship.[123] These countries have a focus and a culture that will be less prone to full integration into a US-Mexico-Canada block--due to location, history, and demographics--as is the current North American trend.[124] However, a regional challenger to the US is not a remote possibility and, most likely, stability will improve substantially.[125] Security issues will continue to include narco-trafficking and insurgency.[126] Social and political issues will continue to include emigration, military disenfranchisement, economic disparities, and the temptation to revert to authoritarian rule.[127]

US Interests in the 2010 to 2020 Environment

> We have no eternal allies. . . . [only] Our interests are eternal.[128]
>
> Lord Palmerston, Age of Improvement

A nation's interests, what is important to a nation, define the end state which that nation wishes to achieve nationally, globally or regionally.[129] The instruments of power--diplomacy, economics, information, and the military--are the ways a nation achieves its interests.[130] Interests drive a nation's strategy, and hence how it applies the instruments of power to protect or achieve its national interests. The configuration and capability of those instruments are the means of achieving national interests. Understanding a nation's

interests is essential to understanding how it will undertake to achieve those interests. That is, what a state requires from its military in order to protect its interests in the world environment. These requirements define the means of military power--how big, how many, how much, etc. The interests of the United States in a future environment prescribes where US military power may be used and what it should be able to accomplish.

Enduring Vital Interests

As Lord Palmerston suggests, a nation's vital interests are enduring. In fact the United States' vital interests, as will be shown, are consistent, enduring even changes in political leadership. While our interests may be invariable, the environment is not, as the preceding discussion has shown. The changing environment contests our interests in new ways, requiring change in how the ways and means are employed. How the military should change its means to meet future requirements is the crux of this thesis. However, the first step is to define our nation's enduring interests.

As stated earlier, the US will no longer be a superpower, but it is a great power with global political, economic, and security interests. While the US position will have changed, its interests will reflect those national objectives and principles that are consistent over time. Reviewing the present and former administration's security strategies (which span some sixteen years) for continuity, the following overarching interests are identified:

1. The security of the US as a free and independent nation
2. Global and regional stability that enhances US security

3. Promotion and maintenance of a free-market economic system, bolstering the US economy

4. Development of representative government worldwide[131]

The Center for Strategic and International Studies' Foreign Policy into the 21st Century outlines US interests for the twenty-first century further reinforcing the permanence of US national interests. Co-chaired by former national security advisor Zbigniew Brezenzinski, Representative Lee Hamilton and Senator Richard Lugar, these bipartisan statesmen outline US interests as:

1. Protecting the US and US citizens and property overseas

2. Maintaining unimpeded access to key geographic regions and critical economic resources

3. Preventing regional domination by hostile powers

4. Sustaining economic growth for both the US and friendly nations

5. Development and viability of representative government worldwide

6. Controlling weapons of mass destruction (WMD) and their delivery means[132]

Amalgamating these statements of national interest, the enduring and vital interests of the United States can be defined as follows:

1. Protecting the US and US citizens and property overseas

2. Maintaining unimpeded access to key geographic regions and critical economic resources

3. Maintenance of global and regional stability, and the prevention of regional domination by hostile powers

4. Promotion and maintenance of a free-market economic system, bolstering the US and friendly economies

5. Development and viability of representative government worldwide

6. Controlling WMD and their delivery means[133]

These interests, as articulated by presidents from both parties and several senior statesmen, are critical to the survival, advancement and well being of the United States. Each is a clear statement of where US interests lie, and where national power--all instruments--will be used to counter challenges to them. As an example, regional hegemony is intolerable to the US in areas with critical resources, where freedom of access or navigation are impeded, or representative governments are threatened. Identification of US interests by region will assist in understanding its level of engagement in that region, and assist in determining potentials for conflict.

Interests in North America

US interests in North America directly reflect the enduring and vital interests outlined above. Though forecasted to be successful, economic expansion will nevertheless continue to be paramount for both the US economy and general regional stability. Democracy, and in the maintenance of Mexico's democratic institutions, will also be a priority. Security focuses on maintaining the integrity of the southern US border.[134]

Interests in Russia and Eurasia

Interests in Eurasia and Russia focus first on security and global and regional stability. Of primary importance is preventing Russia from reemerging as a military threat while treating Russia as a major power. American interests then center on maintaining the momentum of reform by encouraging growth in democracy, promoting and supporting economic reforms, promoting regional stability, and control of the Russian nuclear arsenal.[135] These two focuses, threat mitigation and reform, are directly linked; failure of the second will surely undo the first. The West and the US in particular will still be engaged with Russia over future security cooperation, ensuring consultation on world affairs, and continued disputes over NATO expansion.[136]

Interests in Europe

American interests in Europe pivot on maintenance of global and regional stability, prevention of regional domination, and maintenance and access to a free-market economic system.[137] American leadership is still required, and US engagement is essential to mitigating the challenges of strife in southeastern Europe.

Interests in the Middle East and Southwest Asia

The Middle East, due to its energy wealth, is of primary concern to the entire world. American interests in this critical region are primarily twofold. The first interest is in maintaining unimpeded access to key geographic regions and critical economic resources; in this case the Persian Gulf and oil. Second, the US wants to ensure regional stability, prevent regional domination by a hostile power, and

counter proliferation of weapons of mass destruction. These interests are linked to oil, access to the Persian Gulf, preventing Iran or Iraq from gaining control of or establishing hegemony in the region, and the security of US friends and allies.[138] Security of friendly nations includes preventing intimidation by neighbors like Iran, and dealing with radical Islamic fundamentalism. As long as oil is the preferred source of energy, this region will receive US attention.

Interests in Greater Asia

As the economic center of the world beyond 2010, the whole of Asia will be a source of US markets and competitors. US interests in this broad and varied region are comprehensive and include: protecting the US; maintaining unimpeded access; maintenance of global and regional stability; the prevention of regional domination; promotion and maintenance of a free-market economic system; developing and supporting representative governments; and countering WMD proliferation.[139] Economic competition will be fierce, but is expected and should be healthy. China, and potentially India, are the most likely challengers to US interests in this pivotal region.

US influence will not be maintained without physical presence in the western Pacific and Asia. Japan offers the best location strategically and from a relationship standpoint.[140] A strong US-Japan relationship must continue for this and other reasons. Former Ambassador Mike Mansfield's conclusion is that "The US-Japan relationship is the most important bilateral relationship in the world."[141] The NDU's Dr. Patrick M. Cronin sums up Japan's importance this way: "As Asian nations grow stronger economically, politically,

and militarily, American leaders must grasp the significance of an integrated and consistent strategy toward Japan, not just for the results it can produce vis-à-vis Japan itself, but for the impact such a policy can have on America's standing throughout the region."[142]

Interests in Africa

Interests on this continent focus on stability, promotion of a free-market economic system; and developing representative governments.[143] The best chance for success is in southern Africa,[144] but the US must spell out how and why it may become involved anywhere in this troubled region.[145]

Interests in Latin America and the Western Hemisphere

American interests in the Western Hemisphere focus on maintenance of regional stability, promotion and maintenance of a free-market economic system; and developing and supporting representative governments.[146] Economic engagement will greatly assist in tying North and South America together. Overt influence by other powers in this historically "American" sphere of influence will not be tolerated.

Potentials for Conflict

> If history teaches us anything, it is that we must resist aggression or it will destroy our freedoms.[147]
>
> President George Bush, Conduct of the Persian Gulf War

Economic interdependence and free market expansion will serve to minimize major regional conflict in Asia--unless North Korea survives somehow--and in South America. However, countries with highly sought after resources, but without free market economies, may well be the

Twenty-First Century's rogue states. These rogue states will include Iran and Iraq, and may also include one or more of the "Stan brothers," if they are able to exploit their energy reserves.

Committing US forces to a conflict requires challenges to enduring and vital US interests. While it appears certain that the US will continue to have global interests, challenges to those interests will probably not be global. Regional challenges may well result in conflict, military or otherwise, but the future synthesized in this chapter does not indicate the rise of a nation with aspirations of world hegemony. There are nations with interests in their own regions that will probably run counter to those of the United States. US interests in the future described here indicate potential conflict over regional hegemony, freedom of access and navigation, threats to representative governments, and counterproliferation of weapons of mass destruction.

Regional Hegemony

A regional hegemon is the most likely source of confrontation for the US military. China and Iran are the two most obvious possibilities. China will be a de facto hegemon if only because of its size and economy. Chinese designs on controlling the South China Sea and the Spratly Islands, as well as possible conflict with a Taiwan, leaning towards independence, are all areas where Chinese and US interests could clash. Iran's continued influence over the Shiite populations in the Arab Middle East, coupled with a continued hatred and opposition to the US, indicate eventual conflict.[148] Iraq's ability to rise is doubtful due to continued attention by Gulf Cooperation Council (GCC) states and the US. Teaming of Iran and Iraq, presently a popular scenario, is

unlikely despite the old Arab saying that "my enemy's enemy is my friend." Arab-Persian hostility runs deep, Iran presently seeks to contain Iraq. "Iran sees itself as friendless in a hostile world."[149] India--due to its size, military potential (conventional and nuclear), growing economy, location, and self image as an eventual great power--is, and will be, hegemonic within South Asia, but not confrontational regarding the US. Increased wealth, coupled with a rise of Hindu nationalism, could produce a hostile and more capable hegemon.

Freedom of Access and Navigation

Freedom of access and navigation is a basic interest that the US has gone to war over in the Gulf. There are two regions where this comes into question. First, Chinese hegemony over the South China Sea with their new blue-water navy and control of the Spratly and Paracel Islands are direct challenges to this long-standing US interest. Oil and trade flow through those waters, regardless of what lies below them, potentially impacting large parts of the Pacific Rim economy including Japan and Korea. Iran's designs on closing or at least controlling the Straits of Hormuz directly challenge this vital interest as well. The Suez and Panama canals could become potential conflict zones, but US engagement in both regions and probable economic improvement in Latin America make this unlikely.

Threats to Representative Governments

Chinese suppression of Taiwan or destabilization of a reunified Korea are likely points of conflict. Pursuit of what Huntington has characterized as the US missionary-like zeal for liberal democracy could

expand the potential for conflict beyond China. This is particularly true if the US continues to dismiss the various forms of successful representative government as inferior to its own liberal democracy.

Counterproliferation of Weapons of Mass Destruction

WMDs will increase. The nuclear genie is out of the bottle. Nations aspiring to great power status look at these weapons as a point of prestige as well as a means to influence or deter regional adversaries. The problem becomes stopping rogue states from acquiring the capability. Chemical and biological capabilities are difficult to prevent. Nuclear technology is less easily duplicated, and therefore easier to track and perhaps target. India already has the capability. Iran may find itself suffering a similar fate to Iraq's by both Israel and the Gulf Coalition. Chinese and Russian support of other nations pursuing nuclear weapons, particularly Iran, may cause a clash between great powers. The proliferation of WMD, particularly nuclear weapons, requires that the US maintain a deterrent capability. A recent proposal to unilaterally disarm, advanced by a former Strategic Command commander-in-chief, is naive. The trend towards proliferation is clear. Further, nuclear weapons have helped prevent a major war for over forty years, and may have a damping effect on those nations who possess them.

Conclusion

> National interests should determine US involvement abroad.[150]
>
> Colonel Harry Summers, The New World Strategy

Generally, the future is bright for most of the world. Economic growth and improvement in standards of living are a key trend for a

large portion of the world. Prosperity will probably fuel the demand for and emergence of various forms of representative government. Economics will define national security in the future beyond 2010 and will drive decisions, as is the case for most of history. Economics may well be the weapon of choice in many cases. These developments will be positive. However, there will still be clashes of interests between nations, though generally confined to the regional level. History, can serve as a guide for anticipating the reaction of nations to this future. While it is not predictive of what will happen next--the historical record is not a sine wave--history can serve to help anticipate interests and potentials for conflict.

The world environment will reflect, in varying degrees, the visions of Toffler, Huntington, and Kaplan. The world will be trisected with categories of nations reflecting the manner they make wealth, and war. Differences in culture will be exacerbated by the ever shrinking world. Without changes in the missionary like zeal of the US regarding the universal applicability of western values these differences may become a fault line for conflict across political, economic and military lines. Unfortunately, the first wave world of Africa will reflect Kaplan's vision of failed states, anarchy, and chaos; portions of South Asia and Latin America may as well.

Clashing interests guarantee that conflict will not go away. However, the world will not, thankfully, provide the US with another great war to fight. What will be prevalent is a lot of "almost" wars requiring shows of force and posturing, clashes between regional powers, and perhaps clashes between regional powers and one of the great powers-

-most notably the United States. China possesses the greatest potential for rivalry and conflict. That said, China does not have to become an adversary; a competitor for sure, but not necessarily an adversary. India is a distant possibility, but unlikely. Russia will be too mired in its own internal problems to realistically challenge the US. Japan should not become an adversary given continued engagement by the US and continued regional presence. Iran and the Gulf region will remain volatile.

Physical presence, not potential presence, in Europe and Asia will remain essential to maintaining "a place at the table" and to the US ability to exert leadership and influence when necessary. Presence must include ships at sea, particularly in Asia, and troops and aircraft on the ground. Only with presence does US commitment become clear. Presence and its corresponding "place at the table" will allow the US to mitigate potential points of conflict. Presence is what will allow the US to keep China as a competitor, instead of an adversary.

Conflict will change in line with the trends covered in this chapter. What war will look like and what types of forces are required to fight it will be explored in the following chapters. However, conflict will be a reality best described as of medium intensity. Potential competitors will have access to most of the same information based tools as the US and its Allies. Competition and conflict will most likely occur in Asia and the Middle East over hegemony, access to markets and resources, and freedom of navigation. Conflict over WMDs will be continuous, both in the shadows and in the open with diplomacy

and sanctions. American forces probably will not be committed to areas where vital US interests are not challenged, particularly in Africa.

Accepting that US defense is not a growth industry, the US must narrow its focus. The current defense strategy calls for developing a capabilities-based strategy and force that may be unnecessary or perhaps insufficient. The argument goes that a great power must be able to project military force to two regions within a compressed time period. Similar concepts resulted in the downfall or decline of several great powers that preceded the US.[151] In order to avoid that pitfall, the strategic focus should be on identifying the future threats to vital US interests, establish which threats probably cannot be avoided and prepare to meet those challenges.[152] Establishing who will challenge the US will lead to discovery of what future warfare will look like. This discovery will point to what the military will need to look like in order to win. Meeting those unavoidable challenges will include being able to deter confrontation, compel favorable behavior, and achieve decisive victory if deterrence fails.

Forces must be able to deter war with one of the other great powers and win wars decisively against regional powers. Deterrence will not be genuine without decisive victory being assured against Iran or another actor. How these forces are organized, equipped and used will be discussed in the next two chapters. Regardless of what they look like they must provide a viable way to protect or achieve US interests.

CHAPTER 5

THE FUTURE CONFLICT ENVIRONMENT

Introduction

The previous chapter provides substantive indications as to what the world will look like beyond 2010, what vital US interests will be challenged and by who. Identifying the probable challengers provides a great deal of insight into what the military conflict environment will look like and what the probable challengers will have at their disposal when confronting US interests and subsequently US forces. The purpose of this chapter is to describe the probable challengers and to establish the future battle space in which US forces will operate.

The Probable Challengers and Their Capabilities

As explained in chapter 4, there are many probable challenges and several related challengers to the United States' future interests. These challenges threaten the end state of US military strategy which is stability. Briefly, the challenges facing the US in the future environment are: regional hegemony; obstructed access to regions, markets and resources; opposition to representative governments; proliferation of weapons of mass destruction (WMD); and regional instability. Chapter 4 identified what the challenges were, and who would precipitate them, it is important to outline how those challenges would be advanced.

Regional Hegemons

Hostile regional hegemons prevent nations from freely exercising their prerogatives in trade, security, government, and relations with other nations, both internal and external to the region. Hostile regional hegemons can destabilize a region, adversely impacting friendly governments and the regional productivity. The United States' most likely potential adversaries are China, Iran, and perhaps India. China is pursuing a multifaceted modernization plan. China's Army will probably have approximately twenty of seventy divisions with capabilities similar to those of the US during Desert Storm with limited expeditionary capabilities. China's navy will be characterized as a limited objective "blue water" navy capable of projecting dominant influence over the South China Sea, and perhaps portions of the Indian Ocean. As previously discussed, Iran appears to be pursuing a strategy of rebuilding its basic capabilities coupled with procurement of capabilities asymmetrical to those of the US. These asymmetrical capabilities include purchase of submarines, development of WMD, and ballistic and anti-ship missile technology. Iran does not need to seek direct combat with the US to assert control over the Persian Gulf. Denying access through the Straits of Hormuz and the eastern ports of Saudi Arabia may be sufficient to prevent successful US intervention. This also places the region under de facto Iranian control. India, while not necessarily a hostile hegemon, sees itself as an emerging great power with direct and unassailable interests in the control of Indian Ocean. India is currently a developing economic giant with a stable democratic tradition. Substantial change in India's current

situation would be required for India to become an antagonist. That said, India possesses the world's second largest military with significant land forces, a reasonable air force, and a navy that could project control over the Indian Ocean region with increased investment. However, increases in capability can be easily tracked.

Obstructed Access to Regions, Markets and Resources

Threats to US access to regions, markets and resources are directly linked to the most likely hostile regional hegemons, China and Iran. China's blue-water navy is not intended to challenge US dominance of the high seas, any more than the Soviet Navy could during the Cold War; it is intended to secure Chinese influence and dominance over those areas that are essential to Chinese interests. In this vein, China has historic, economic, and strategic interests in asserting control over the South China Sea. These sea lanes are essential to the commerce of Japan, China's primary regional economic and political rival. Additionally, given China's status as a net energy importer, the potential energy reserves in this area may be essential to China's continued economic development. Control of those resources only improve China's relative economic and security positions. Finally, this region is seen by China as its area of influence. As China continues to assert itself as a great power, these image issues will become more important. Another area for concern is China's involvement with Burma.[1] Control of the approaches to the Straits of Malacca from bases in the vicinity of the Bay of Bengal, coupled with hegemony in the South China sea, would place China in a position to influence about half the world's trade, and place a stranglehold on the whole of Asia.

Iran, as previously discussed, sees itself surrounded by enemies. It is improving a growing military capability.[2] The asymmetrical capabilities of this modernization program may provide problems for the US. Iran will continue to attempt to project its influence over the Gulf, with a focus on intimidation of its neighbors and obtaining a capacity for control of the Straits of Hormuz.[3] It seems clear that Iran cannot directly challenge the US, but it can complicate US presence and access to the region to a point where the US is unable to sustain operations. This is particularly true if economic issues transcend political and security issues to the point where potential allies place their own economic interests ahead of relations with the US. The current debate over Iraq is instructive when considering this last point.

Opposition to Representative Governments

Major power opposition to representative government primarily is linked to China's opposition to a free and independent Taiwan. The present One China policy translates into a policy of one China, two systems. That policy was developed while the Nationalist Party--espousing reunification--held power in Taiwan. The situation is changing with the election of a native Taiwanese to the presidency, and an increasingly vocal independence movement within the majority native Taiwanese population. This situation will probably alter Taiwan's present stance of reunification with China. This situation flies in the face of China's stated objective of reunification. China's efforts to bully the Taiwanese electorate in 1996 coupled with the deployment of two US carrier battle groups to the Taiwan Straits--lost or not--

indicates the potential for conflict. With its improved navy and expeditionary capabilities, the Chinese may be able to bring about reunification, forcibly or otherwise.

The other major potential for conflict with regard to representative government is the possible destabilization of a reunified Korea by China. This challenge is likely to be confined to espionage, special operations activities, and economic and political confrontation. It is unlikely that China would invade or directly pressure Korea militarily. However, it is likely that China would maintain pressure on a reunified, market democracy on its northern border.

Weapons of Mass Destruction (WMD) Proliferation

As discussed in chapter 4, "nuclear club" membership will increase. A nation holding nuclear weapons is not in and of itself a direct threat to the US, anymore than a regional hegemon may be. Rather, nations with that capability and with interests in contradiction to those of the US are a threat. Despite current efforts to end the production of chemical weapons, it seems unlikely that success will follow. They are the poor man's equalizer and are easily produced and concealed as both Libya and Iraq have shown. A primary threat to US interests in the proliferation of WMD will be Iran. Where China and India have the mass--the first and second largest armies in the world, growing economies, etc.--to confront US power within their spheres of influence, Iran does not. Weapons of mass destruction are part of a visible trend in Iran's development of asymmetrical capabilities. China will continue to refine its nuclear capability.[4] While not necessarily

arming itself significantly, India will not join the Non-proliferation Treaty. Being denied this tool of the great powers directly contradicts India's aspiration to be a great power.

Regional Instability

Regional stability is the goal of US deterrence. Stability allows economic growth to flourish. Europe, Asia, and recently large portions of Latin America, show the fruits of stability in those regions. It is no accident that the majority of US trade is linked to those three regions.[5] US regional presence has been a key component in achieving the stable environment so essential to the growth and opportunity prevalent in or growing in those regions.

Instability is destructive to economic growth and economic and social justice. The degeneration of Zaire and Nigeria, two mineral rich nations with great economic potential, clearly illustrate this point. To a great extent, regional instability will be a by product of any confrontation between the US and China, Iran, and perhaps India. This fact alone may provide the necessary mitigating factor in possible confrontation between the US and China or the US and India. Both China and India are benefiting from economic development that is the product of stability in their regions. Neither is likely to abandon impulsively the obvious benefits of economic growth predicated on stability. Iran, however, is a different case. Iran is not benefiting from an economic surge, and its isolation may embolden it to take destabilizing actions.

The other threat to regional stability in the Gulf and the Middle East is the threat of radical Islamic fundamentalism. The overthrow or threat of overthrow of a friendly Middle Eastern nation threatens US

influence and interests in the region. An intelligent presence, attuned to the social and political realities of the area, may be required. Additionally, depending on the nation involved, US involvement may extend beyond advice, support and assistance. A step such as this should be tempered with the experience of the US with Iran in the late 1970s.

China, India, and Iran occupy regions where the US has vital interests, and US action is probable in restoring stability. Africa is not such a region. Africa is a region where instability is prevalent and likely to continue. The US is unlikely to become involved, and unless a vital interest develops and becomes threatened, the US probably should not become involved. The national will is not present to support the kind of long term military involvement required to settle the many historic disputes that characterize conflict in Africa. It appears that a series of African solutions-- some emerging from the end of the gun as with Executive Outcomes, along with regional forums, and sadly civil war--may provide the most realistic answers to these intractable solutions.

The thread of continuity in Europe, Asia, and Latin America has been a reasonable US presence and active US involvement. Those regions have experienced reasonable stability for between twenty and fifty years and economic growth and trade have followed. As stated in the conclusion of chapter 4, presence equates to commitment in the eyes of allies and observers in a region. Presence is costly, and the trend is to scale it back. However, given the national economic benefits of trade in stable regions, it is a wise continued investment. As an old

UN slogan says, "If you think peace is expensive, try war." In this case while presence is costly, the costs of instability far outweigh the costs of maintaining presence.

Threat Summary

China has the greatest potential for clashing interests with the US and the greatest likelihood of developing the forces required to back up their competing interests. That is not to say that war with China is inevitable. However, it is to say that deterrence will be required. The bulk of China's armed forces will still be oriented at maintaining internal stability and will possess only limited objective force projection capabilities. Just beyond 2010, China will possess land forces with about seventy divisions, twenty of which will be equivalent in capability to the US forces of Desert Storm. China's navy probably will be hegemonic over the South China Sea and perhaps the Straits of Malacca. This navy will have limited expeditionary capabilities and have no more than three carrier battle group equivalents.[6] The Chinese air force will again have a limited expeditionary capability, most likely oriented at force projection into Taiwan. This air force will also have several hundred SU27 and MIG29 aircraft, along with tanker and transport aircraft.[7] Nuclear forces will increase in quality more than quantity.[8] For these reasons, clashing interests and increasing capabilities, China is the major force the US must be prepared to deter and perhaps fight. A position of strength relative to China and continued economic engagement may well preclude confrontation and war. However, overestimating the power of economic engagement while

underestimating the utility of military power in this relationship could be disastrous.

Iran's modernization program appears to focus on two axes. The first axis is the rebuilding of its conventional force, devastated by the eight year war with Iraq. This first approach should not necessarily be viewed with alarm. Iran's armed forces are probably below the levels they need to be for control and defense of its own territory. The same cannot be said for the Iranian's second direction of modernization. The second axis focuses on developing capabilities to control the Straits of Hormuz and intimidate its Gulf neighbors. This modernization path includes the development of WMDs, including a nuclear weapons program, and the development of a missile and naval force oriented on denial operations forward of and on the Straits of Hormuz. The US, given a limited European presence in the region and the limited population of the Gulf Cooperation Council (GCC) states, requires the capability to undermine Iran's WMD program and deter actions oriented on denying access to the Arabian Sea and the Straits of Hormuz.

India's army is the second largest in world. This army is currently oriented primarily on internal security operations and operations along the Pakistani border. Given the geography of the area, it is doubtful that India will develop a force projection land force beyond improving its capabilities regarding Pakistan. The naval picture is not as promising. Currently, India's navy is only about fifty percent operational and capabilities for blue-water operations are limited.[9] However, the Indians have a policy of self reliance and with an increasing economy may turn the naval picture around. India is

hegemonic in terms of its neighbors in the region. An increased naval capability would clearly be oriented on controlling access to the Indian Ocean. Perceiving itself as a great power, India sees the Indian Ocean as being under its purview. Chinese naval activity in and around the Bay of Bengal may spur this on. The US task is to maintain deterrent capabilities that prevent India from extending control over the Indian Ocean.

Russia, despite its present problems, severe as they may be, still bears watching. Its military equipment is still considered to be top rate, and its nuclear forces are substantial. While it is unlikely that Russia's conventional forces will recover from their present slump in the near term, their quantity still bears consideration. Additionally, the nuclear threat is still an issue regardless of where the missiles are currently pointed. The US deterrent focus should be on first maintaining a credible nuclear retaliation threat. Fifty years without a "hot" major power war attests to the advisability of continuing this strategy. Second, US forces should be able to discourage substantial Russian operations in major former Soviet states such as Ukraine, the Baltic, and Georgia. Third, there must be a credible deterrent to Russian pressure against the former Warsaw Pact countries.

Regional instability is most likely the product of transitional regions such as Africa, where a US military presence is not attendant and US interests are not substantially threatened. A failure to maintain presence in those areas of Europe, Asia, and the Middle East where US interests are high will likely result in instability. The future force will have to be applied judiciously to promote and protect

vital US interests. Lengthy deployments of US forces to restore stability to regions where US interests are not clearly threatened will only detract from the overall deterrent and warfighting capability of a leaner future force.

The Military Environment of 2010 to 2020

From the previous review of potential competitors and their general capabilities, it can be seen that US force requirements can be focused through strategy, rather than the current capability based approach. The threat may appear to be more diffused than during the Cold War, but in fact it will be probably no less diffused in the future as it was then. During the Cold War the target of military deterrence was clearly the USSR, and to a lesser extent China, but the scope of US involvement spanned the entire spectrum of conflict short of global war. The Korean War was what is now referred to as a major theater war (MTW). Vietnam could be characterized as an operation other than war (OOTW). Afghanistan, El Salvador, and Panama also fall into the realm of OOTW. Desert Shield/Desert Storm was a MTW. Likewise, the threats outlined in the preceding paragraphs and in chapter 4 will generally reflect these same conflict environments. Despite Martin van Creveld's contention in The Transformation of War that low intensity conflict will become preeminent over all others, it is unlikely that one war form will overshadow the others where the US is concerned. The conflict environment will probably reflect all the various forms previously and currently executed by the US, covering the spectrum of conflict from peacekeeping, peace enforcement, and perhaps even counter insurgency, to major theater wars similar in scope to Desert Storm. Due to efficiency

and effectiveness requirements, an MTW focus is necessary. Forces can transition from a combat to a noncombat focus, but moving the other way is very difficult. However, while the US military will continue to face a conflict environment that spans the spectrum of conflict up through MTW, the components of that spectrum and the ways of war may be quite different. These components and ways are briefly outlined below.

Proliferation of Technology and Access

The military forces that will confront the US will have many of the same capabilities currently the exclusive possession of US and allied forces. Night vision equipment, satellite communications, global positioning system access and exploitation, precision guided missiles and munitions, stealth technology, and satellite and UAV imagery will be common. These realities will require the US to fight smarter, and develop countermeasures to these capabilities. Some observers have characterized this trend as a prelude to the death of the platform. Richard Perle, the Friedmans (The Future of War), Martin Libicki of the National Defense University, and a host of others, postulate an era of sensor-fused fires based warfare where technology based finders and killers become the king of battle.[10] This is the genesis of what this paper refers to as the RMA force. However, the modernization trends of the most likely adversaries reflect a different reality. China's goal is to achieve Desert Storm capabilities in approximately one fourth of its force.[11] For the purposes of force design, suffice it to say that every advancement in detection and range has evoked an effective countermeasure. It is not presumptuous to assume the same may be true for forces operating beyond 2010.

Weapons Proliferation and the Operational Environment

The diffusion of technology, as discussed above, and economic growth will result in an increase in the types and numbers of weapons and systems available to potential adversaries. As the discussion of future trends in chapter 4 points out, spending and force development is slowing only in the western world. Further, WMD proliferation, particularly nuclear weapons, will continue. This trend will result in a multitude of challenges and changes for US forces. The major challenges and changes are discussed below.

Information Warfare (IW) and Information Dominance

Computers and information based technology are a fact in everyday life and in warfare. In part, or at the strategic level, information warfare deals with attacking national systems such as monetary and banking systems and command and control apparatuses with viruses that shut these critical systems down at the most inopportune moments. At the operational and tactical level, virus attacks, spoofing--false signatures and images--of both friendly and enemy situations, and processing information faster and more reliably than the enemy will constitute information warfare.

A primary product of IW is best captured in the concept of dominant battle space knowledge (DBK). Dominant battle space knowledge presupposes that US commanders at all levels will possess a common picture of the battlefield where the location and type of every enemy and friendly unit will be known, and enemy moves will no longer be a surprise. The Friedmans postulate that advances in multispectral technology will make it impossible for war machines to exist without

being struck. Martin Libicki, from NDU, talks about these advances in terms of a mesh of sensors and systems that draws this information together in a manner where the commander has a near perfect vision of his problem, and the enemy is unable to escape detection.

Systems that foreshadow the tools of this capability already exist to an extent at the national level, the theater strategic and operational level. At the strategic level, missile launches can be tracked by DSP satellites that are linked to STRATCOM and other national command centers. National reconnaissance satellites can provide near real time imagery with resolution under one meter to strategic and operational headquarters. The ability to down link JSTARS, satellite and UAV imagery into strategic, operational and tactical command posts is already a reality. However, countermeasures to seemingly dominant capabilities are almost always just a step behind. There are camouflage systems available today that cannot be discerned by high resolution photographs and even the naked eye at low level. With this development at hand, multispectral camouflage cannot be far off.[12] The present imaging capability is unreliable, at best, in mountainous, jungle and urban terrain,[13] and overcoming these limitations is not a short-term problem. Jamming, deception, and spoofing of satellites is possible today,[14] and these capabilities will increase in-line with sensor improvements. The US Army's 1994 Advanced Warfighting Experiment at the National Training Center (NTC) provided an example of nontechnical countermeasures available to a thinking, reasoning enemy. The opposing force (OPFOR), a Soviet based force with at best 1970's technology, found that designating forces to provide confusing movement and

activities were often sufficient enough to fog the friendly digital force's seemingly dominant battle space knowledge (DBK). This momentary confusion as to enemy intentions allowed the OPFOR to accomplish their task successfully. The Iraqis were able to spoof satellite and overhead imagery with techniques as simple as painting holes on a runway to deceive the Coalition as to the effectiveness of bombing raids.[15] Additionally, the armor force that attacked at Al-Khafji assembled and moved under the gaze of JSTARS without detection.[16]

History is also a teacher in the overall utility of information dominance. Forces have fought in other wars with perfect intelligence and still lost. The battle of Kassarine Pass was a decisive defeat for US forces, despite having perfect knowledge of the enemy courtesy of the Ultra intercepts. Likewise, US forces had perfect information from Magic intercepts on the enemy defending Peleliu and still lost unprecedented numbers of Marines. Organizations and ways of war that assume perfect knowledge as a given or prerequisite to success are probably stillborn.

Long-Range Precision Strike

Long-Range Precision Strike (LRPS) is the fusion of information systems, targeting and long-range, precision-guided munitions launched from land-, sea-, and air-based sources.[17] This coupling of surveillance and acquisition systems to shooting systems is the essence of RMA warfare. There are those, like Richard Perle and the Friedmans, who advocate this as the warform of the future. Others see LRPS as the inevitable conclusion of the information revolution. Martin van Creveld's estimation, in The Transformation of War, is that this war

form will be generally useless as war transforms from maneuver based to insurgency based operations.[18] Douglas Macgregor states emphatically that long-range precision strike is a capability, not a military strategy.[19] Regardless, the threat of precision guided systems are driving naval forces far from shore, providing selective destruction capabilities, and demanding dispersion of assets and perhaps even the end of forward bases.[20] At the very least these weapons reduce the logistics requirements for munitions due to a kill probability approaching one-hundred percent. This capability will also require counter measure development, power projection operations without ports or airfields, and extended range operations. This said, the systems that provide the acquisition and targeting for LRPS are the same systems that provide DBK, with all the same potential shortfalls.

Antiship Cruise Missiles and Mines

Antiship cruise missiles are a subset of LRPS which complicates littoral naval operations. Currently, shore radar and acquisition systems often dictate that naval and amphibious forces operate, at a minimum, over the horizon (beyond the curve of the earth). Coupled with unimpeded access to GPS signals and commercial satellite imagery, coastal nations will be able to detect and engage naval forces even operating over the horizon. This will complicate naval operations against shore and inland targets due to extended ranges--in excess of two-hundred miles.

Mine warfare is old, and yet new again. In 1915, the British Navy was turned back from running the Dardenelles, not by the numerous Turkish forts and gun emplacements, but by a single minefield that went

undetected until it sank two men of war. More recently, mines laid by the Iranians damaged a US Navy frigate during the Kuwaiti tanker reflagging operation in the mid 1980s. This incident caused the Navy to run the tankers being escorted ahead of the Navy combatants because a tanker could sustain a mine explosion more readily than the Navy ship. The new developments in naval mine warfare include non-metallic bottom laid and sensor-fused mines that are passive until activated by a ships noise or electrical fields. Just as the British Navy lost ships in close to shore over eighty years ago, these new more sophisticated mines will slow decisive naval operations in the littoral area as well. Additionally, clearing operations will become more difficult due to the difficulty in locating the mines.

Submarines

The improvements in diesel-electric submarine technology have resulted in boats that are quieter, with longer range and greater capabilities than previous generations. These boats can lie along probable sea lane approaches, lay mines, target merchant vessels carrying force projection equipment or supplies, or go after prize naval targets such as an aircraft carrier. These systems are not impossible to detect and destroy, but their substantial improvement in capability adds a threat to the naval equation not previously a significant factor in regional conflict.

Asymmetrical Capabilities

Asymmetrical capabilities can be described as simply choosing to deter or fight a competitor with systems, organizations, and methods

that do not attack strengths, probably exploit a weakness, and are not generally prepared for by the opponent. Iran is an example of a state working to achieve asymmetrical capabilities. It does not appear that Iran plans to take on the US in a maneuver warfare competition, or directly oppose the US air or sea capability. However, Iran appears to be trying to procure WMD, LRPS systems, submarines, sea laid mines, and air defense systems. Further it exploits terrorism to its advantage. These systems target US capabilities with dissimilar systems, and when taken as a whole may become a very difficult problem to solve. The approach looks to exploit weaknesses and avoid direct combat, a US strength. Missiles, air defense, and sufficient seapower to hazard the US fleet and commercial support and deployment assets in the Arabian Sea may be adequate to cause the US to reconsider forcing entry into the Persian Gulf. Terrorism may sufficiently intimidate some GCC state so that they back away from support of the US.

Weapons of Mass Destruction (WMD)

Trends indicate continued proliferation of WMDs. The chemical and nuclear projects uncovered in Iraq during and after Desert Storm, Libya's continual efforts in this vein, North Korea, Pakistan, and the list goes on, amply illustrate this trend line. While the US has forsaken chemical weapons, it has not forsaken the right to retaliate, and still maintains a nuclear deterrent. Continued efforts in counter proliferation, a political and at times special operations function, coupled with a strong deterrent capability will be required to discourage WMD use against US or allied nations and forces.

Reduced Presence and Force Projection

The movement towards a multipolar world, shrinking budgets and forces have removed much of the impetus behind a continued US overseas presence. However, as discussed earlier, presence has resulted in stability in large parts of the world. A US presence will still be required where the US desires to have a strong influence, but this presence will be reduced in size and scope. This will require the deployment of additional forces and assets from the continental US (CONUS) in order to conduct operations in times of crisis or war. The fact is that the US has always been a force projection military, Korea, Europe, and the Middle East have always required substantial CONUS based forces to meet actual force requirements. REFORGER exercises were a prime example of this for Europe, and the entire Desert Shield and Desert Storm operation was a force projection operation. The reduction in scale of force commitments overseas will require a greater percentage of forces from CONUS, and the speed at which events move will require that they move decisively and often be committed to combat immediately upon arrival. Alliances, regional access to ports and airfields, prepositioned equipment sets, both sea and air strategic lift, and the capability to put forces into a theater without ports (joint logistics over the shore (JLOTS)) will be the tools that allow US forces to be decisively deployed into a theater.

Blurred Strategic and Operational Confines

Recent and current operations point to a blurring of the strategic, operational and tactical levels of war. The distinctions between these levels began to merge as far back as World War II, in part

due to the increasing depth of what were previously tactical operations.[21] Operations conducted at tactical levels, due to the depth they can achieve and the realities of the information age, now regularly bleed over into the operational and strategic arenas. Indeed, the linkage of operations such as the peacekeeping mission in Macedonia to the Pentagon, pulls a battalion's operations, one of the lowest tactical levels, and its consequences immediately up into the strategic realm. Information and depth are blurring these lines to the point where the levels of war can be seen as concentric or interlocking spheres of responsibility (see figure 1). The impact of this change is that tactical actions impact all levels of war, and vice versa. No longer can leaders and units look at strategic and operational considerations as "above their pay grade."

Desert Storm was a precursor to the blurring of the distinctions of service operations and operational dimensions. Naval air worked as part of the integrated air tasking order, a naval amphibious task force with a Marine expeditionary force (MEF) on board provided a demonstration that fixed two Iraqi divisions on the coast of Kuwait. Army missile attacks struck into areas formerly the purview of Air Force operations, and Army attack helicopters destroyed Iraqi radar sites to allow the air campaign to cross into Iraq undetected. Air attacks on the highway north of Kuwait city rendered precision destruction on an Iraqi column that formerly could only be executed exclusively by land operations. Further, in Haiti two aircraft carriers provided the launch platform for Army Rangers, special operations forces, and a brigade from the 10th Mountain Division. Throughout these operations, space systems

provided information, targeting, guidance, communications, and assessments of mission success in a rapid and often continuous fashion. As acquisition capabilities and weapons ranges increase, geographic limitations will be transcended, with CINCs being able to task "out-of area" systems and forces.[22] With the surge in information based technology, reduced force structure, and an emphasis on joint operations, this trend will only become more common place. General Eisenhower remarked after World War II that never again would the US military fight separate, service based campaigns. It may soon become difficult to detect the delineation of service activities and responsibilities during actual operational execution.

Urbanization of the Battle Space

The rapid growth of areas such as Rio de Janeiro in Brazil, Mexico City, Seoul Korea, and coastal cities in China indicate a high probability of urban combat for any land force. Complex terrain may be unavoidable and will require soldiers to fight in it.[23]

Increasing Operational Dimensions

Warfare was once spoken of in two dimensions, the depth and breadth of the battlefield. With the advent of air warfare, and now aerospace warfare, the operational dimension has increased to three, the depth, breadth and height of the battle space. In fact it is this change that coined the characterization battle space. The importance of the electromagnetic spectrum added a fourth dimension, which is increasing in importance with the explosion of information age capabilities. With the addition of information technology and its

associated concepts of dominant battle space knowledge and information dominance a fifth dimension is added, that of time. The ability to process information and cut the detection to engagement time frame,[24] provides what has been called a time flank.[25]

Conclusion

The emerging realities of the future conflict environment will impact any force operating in the early decades of the twenty-first century. Some may make current organizations and ways of war less relevant or perhaps obsolete. Others will only make war more lethal and complex. It is these changes that many observers and students of the military, strategy and operational art have seized on in promoting their prescriptions for change going into the twenty-first century. Likewise, these challenges and environmental realities figure heavily in the design of the EMA and RMA forces to be described in the next chapter.

CHAPTER 6

FUTURE FORCE DESIGN

> We must hold our minds alert and receptive to the application of unglimpsed methods and weapons. The next war will be won in the future, not in the past. We must go on, or we will go under.[1]
>
> General of the Army Douglas A. MacArthur

Introduction

With a probable future environment defined, and given what that portends for US interests and the varied challenges to those interests, a military force must be designed to meet those challenges. As discussed previously, there are many voices calling for change. Change is demanded due to a variety of paradigm shifts. Domestically, the Nation's focus on fiscal responsibility is creating a shift from security and defense expenditures to domestic entitlements and spending.[2] Geo-politically, the end of the Cold-War, evolution of a multipolar world and probable US dominance suggests reasons and opportunities for change. Future military and security trends intimate changes in technology, potential competitors, and changes in who will be making war and how. Further, the consequences of not acting on the trends of the future environment may well be disastrous. The French were certainly confident of the invincibility of the Maginot Line before the German's Blitzkrieg forced both the French and British off the continent at Dunkirk.

If It's Not Broke, Don't Fix It?

Today, the US is in a dominant strategic position. Some characterize the US as the last superpower and the quote "indispensable nation." However, as examined in chapter 1 and illustrated briefly above, exploiting change is essential to maintaining dominance. In the US military's case, the drive for change can be divided into three areas. These areas can be succinctly described as effectiveness, efficiency, and avoiding obsolescence. Effectiveness translates into increased capability and lethality at each level of operation and organization, within each service, and in the way these organizations and services are employed. The current focus on effectiveness is captured in the phrases "leveraging technology"[3] and "technological overmatch," but effectiveness includes doctrine and organization in the very human endeavor of war. Improved effectiveness allows the military to accomplish the tasks assigned, generally promoting and defending US national interests, in a practical manner. Effectiveness ensures politically tenable operations in terms of time, casualties, and treasure expended. Operational time frames are cut through quick, decisive victories saving the nation treasure and leaders political capital. Effectiveness further protects the US forces on the ground. Rapid conflict termination minimizes exposure to hostile action and technological overmatch decreases the probability of death. The ability of US tank gunners to kill Iraqi tanks at a distance of about one mile, beyond the ability of the opposing force to even detect a US presence, is a clear example of technological overmatch. The capabilities provided by systems like AWACS, LANTIRN, JSTARS, Hellfire missiles, and

space platforms are indicators of the potential for technological overmatch.

Efficiency is linked to both effectiveness and the current fiscal obligation in this era of declining defense budgets. Rapid conflict termination through improved effectiveness saves dollars. Though Desert Storm and Shield cost approximately $100 billion,[4] Vietnam cost $570 billion, Korea cost $267 billion, and World War II cost $3.1 trillion.[5] While not directly comparable, this examination demonstrates what a boon to efficiency effective forces can be when they are capable of rapid conflict termination. The other component of efficiency is the requirement to be judicious in the expenditure of federal dollars in the establishment, upkeep and modernization of the US Armed Forces. This requires a force that is as cost effective as possible to retain. Personnel, equipment, and operational costs should be kept low to provide the nation with more capital for other priorities.

Avoiding obsolescence is essential to maintaining sustainable strategic dominance in an unpredictable environment.[6] Obsolescence is related to both technological change and the relevance of organizations and doctrine in the face of changing war forms. In an era of technological diffusion and economic expansion in new regions of the world, there is the possibility that another nation may leap ahead of the US in technological capability.[7] This may take many forms from exploiting technological breakthroughs to acquiring and developing equipment and organizations that can be adapted readily to changes in technology and the general environment.

Obsolescence is a difficult thing to discern as history illustrates. Armored knights became obsolete at the hands of English longbow archers at the Battle of Agincourt. The previously discussed downfall of linear tactics, the disastrous results of dismissing the machine-gun[8]--Ypres, Paschendale and the Somme, and the Maginot Line are a prime examples of obsolete doctrine being overcome by technology. Likewise, Admiral Yamamoto's decision to push his carriers forward of his fleet at Midway, in order to protect his seemingly decisive battleships, allowed the US aircraft to destroy the carriers, and then his fleet. The charge of Polish cavalry against the German Blitzkrieg organization is an example of disastrous obsolescence on both counts--technology and doctrine. Organization, doctrine and technology are all part of the obsolescence equation. Ignoring the first two while focusing on the third is no solution. Maintaining relevance requires constant study, innovation and well reasoned change.

There are various approaches to avoiding obsolescence. One approach is to purchase and employ the latest technology, which may be prohibitively expensive and can cause undue turbulence within an organization. The embrace of stealth technology (a B2 bomber costs approximately $1 billion) is one example of costly technology.[9] Another approach is to look at how to improve existing organizations and equipment by selectively exploiting technology. The European approach to the next generation Euro-fighter is an example of selective exploitation where the aircraft foregoes more expensive stealth technology for less expensive, but effective avionics packages that focus on stealth detection and long-range engagement. Staying ahead of

the technology curve and upgrading current organizations and equipment are examples of using organizational effectiveness to avoid obsolescence. Organizational effectiveness may only provide temporary gain as the changes may be easily imitated by competitors. A third approach requires unique methods of operation in the conduct of similar functions to those of the competition;[10] in this case that similar function is war. This approach incorporates elements of organizational effectiveness, but also seeks out new organizations and methods of executing those similar functions.[11] Joint Vision 2010, as presently construed by current service procurement and modernization plans, could be wholly an organizational effectiveness approach to maintaining strategic dominance.[12] An RMA or precision strike force, advocated by the Friedmans, Mr. Perle, elements of the US Air Force, and others is an example of seeking new organizations and methods to retain strategic dominance and avoid obsolescence.

A business analogy provides an appropriate explanation of how these three factors--effectiveness, efficiency and obsolescence avoidance--tie together into a coherent future defense strategy. The US government and the Nation's taxpayers can be seen as stockholders in their armed forces. Potential enemies and competitors are the customers. The product of the armed forces is deterrence. The dividend to the stockholder is stability which allows the US to pursue its interests unfettered of threats. Wealth and capital follow stability, economic production flourishes and all nations benefit--particularly the United States. As long as the US Military produces a brand of deterrence that others will "buy," then stability is maintained and

national interests and growth are protected. However, perfect stability in and of itself cannot be the exclusive concern of a US strategy. A balance must be struck. Should efficiency, effectiveness, and obsolescence avoidance (maintaining relevance) fall out of balance the nation will not have the wherewithal to pursue its interests, due to inefficiency, or deterrence fails due to ineffectiveness or obsolescence. The issue is to ensure that the armed forces are capable enough to deter or if necessary defeat challengers to US interests, but at a cost acceptable to the country as a whole. Put another way, the US Armed Forces must avoid the fate that befell large, dominant corporations in the late 1980s and early 1990s. Xerox, IBM, and AT&T all found themselves struggling for relevance in a changing strategic environment.[13] Likewise the US must ensure that military requirements do not fulfill Paul Kennedy's great power paradigm--providing for "protection" at the expense of "productive investment."[14] The proper mix of effectiveness, efficiency and relevance is determined by the military requirements of the national security strategy, and is described below.

Military Requirements in Support of an Interest Based Strategy

As Joint Vision 2010 states clearly, the primary mission of the US Armed Forces is to deter conflict or fight and win the nations wars.[15] In that regard the first requirement of the Armed Forces is to deter conflict with China, Iran, and perhaps India. This will require a force capable of deterring a mix of land, aerospace and naval forces. Based on the conclusions of chapters 4 and 5, a military force must deter Chinese designs on the South China Sea, Taiwan, and perhaps Korea and

the Bay of Bengal. It must also be capable of deterring Iranian designs on controlling the Straits of Hormuz and intimidating or attacking its Gulf neighbors by air, sea or ground. India must see a continuing check to any designs it may have on establishing the Indian Ocean as its private preserve. Should deterrence fail, US forces must be configured to eject Chinese naval and land forces from Taiwan, the South China Sea, and perhaps even Korea. The same is true for Iran. US forces must be capable of ejecting Iranian naval and land forces primarily from the Straits of Hormuz area, but also the territory of a friendly gulf cooperation council (GCC) country--Qatar, the UAE, or Oman perhaps. India's potential challenge to the US is probably only naval in nature.

While the probability of an attack by Russia or China on the continental US is low, a deterrent capability coupled with continued counter proliferation efforts is still required. A credible nuclear strike capability must be preserved. SOF and other strategic forces will need to continue to provide counter proliferation capabilities to support diplomatic and political efforts to curb the spread of nuclear and other WMDs.

Stability is an economically and politically beneficial product. A joint US presence in Europe, Asia, and Latin America has been a substantial contributor to stability and the corresponding growth and development experienced there. Given the importance of trade in all three of those regions, US presence, in some visible and permanent manner, must be maintained. Force types, size and support arrangements can change based on modifications to the US military and the regional

economic and force balance, but in order to have a "seat at the table," commitment must be seen through physical presence.

Whatever the force design, these broad requirements must be met in order to promote and defend US interests in the future environment. Failure to link capabilities to these requirements will incur substantial risk. How EMA and RMA forces could be designed is based on the discussion of change in chapter 2, the future environment described in chapter 4, the military environment described in chapter 5, and the requirements outlined above. One reasonable and possible approach to these forces, accounting for these factors, follows.

The Evolutionary Prescription

As touched on in chapter 2, the apparently evolutionary vision of the future US military is described in a series of joint and service publications: the CJCS's Joint Vision 2010, the Army's Army Vision 2010, the Air Force's Global Engagement, and the Navy's Forward . . . From the Sea. These documents outline the current path to US military modernization, but not necessarily unassailable strategic dominance. The following examination of these documents provides a framework for design of the EMA force, but not necessarily the only evolutionary framework. They are, however, a start point.

Joint Vision 2010

Joint Vision 2010 (JV 2010) is the Chairman of the Joint Chiefs of Staff's (CJCS) vision for the conduct of military operations in support of US national security strategy in the near term future (around 2010). This vision is operationally focused and assumes the current national

security strategy rather than to a future based strategy for 2010 and beyond. It describes an uncertain strategic environment, with multiple challenges requiring a multifunctional force that exploits the information revolution and new operational concepts.

Joint Vision 2010 characterizes the future strategic environment as unpredictable and less stable, presenting the Armed Forces with a wide range of plausible futures. Operations will be conducted in a changing world, characterized by joint and multinational operations against capable threats presenting themselves across the spectrum of conflict. JV 2010 postulates adversaries with access to advanced technology and WMD that increase the likelihood of regional instability. Asymmetrical capabilities offer the greatest challenges to US forces.[16] Primary US military missions will remain deterrence and war.[17]

The military environment is described as one where modern systems "are sufficiently powerful that smaller numbers can dramatically alter the threats facing the US."[18] Military technological trends include long-range precision weapons, increased lethality, stealth, and information dominance. Military operations are characterized by increasing tempo, speed, dispersion, and mobility. Joint forces are projected into the area of operations with "less 'startup' time between deployment and employment."[19]

JV 2010 outlines four new operational concepts for the conduct of warfare in the future: Dominant Maneuver, Precision Engagement, Full Dimensional Protection and Focused Logistics. The synergy of these concepts will allow US forces to achieve Full Spectrum Dominance--deterrence in peace, dominance in war across the spectrum of conflict.

Information Superiority and Technological Innovation are the key enablers of all of these concepts.[20]

Information Superiority is an "underlying concept" and "the key enabler." It is the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same.[21]

Dominant Maneuver is the application of information, engagement, and mobility that allows the positioning and employment of dispersed joint forces to accomplish tasks throughout the breadth, height, and depth of the battle space. Positional advantage, speed, stealth, and asymmetrical engagement are key to this concept.

Precision Engagement is a system of systems that enables our forces to locate targets, respond, generate effects, assess, and reengage as required. This concept is tied to the success of information dominance.

Full Dimensional Protection is essential to preventing disruption of these new operational concepts. Control of the battle space is the primary prerequisite, and must be achieved prior to the execution of decisive operations. Information superiority is a key enabler of this concept as well, focusing on the identification of all forces on the battlefield. Other enabling concepts include dispersal of forces, enhanced deception, and improved protective equipment and sensors.[22]

Focused Logistics fuses information, logistics, and transportation technologies to provide rapid response and deliver tailored sustainment packages directly to the theater, and below. The impact of this concept

will be a smaller, more capable deployed force, requiring less continuous support and having a smaller logistics footprint.

This vision provides the foundation on which the services may build their 2010 visions. It studiously avoids future strategic issues, nor is it linked to a future national security strategy.[23] The roles and functions argument is left to others, with the services all looking to strengthen their own position relative to the others. It assumes the use of existing or soon to be procured equipment.[24]

Current Secretary of the Air Force Sheila E. Windall's remarks on her own service's vision are perhaps instructive to specificity. She states that "We need to build an actionable vision. We needed to go beyond lofty statements of intent, to outline a vision specific enough for action, and specific enough so that we could lay out pathways to take us toward our goals."[25] It is not entirely clear that Joint Vision 2010 achieves this level of clarity. However, it does provide a focus on deterring and winning war, which this vision maintains will provide the forces capable of achieving full spectrum dominance. Given this emphasis on war, this thesis will focus on warfighting as well. Presumably, the US political leadership also has embraced this focus.

Army Vision 2010

Army Vision 2010 provides a visualization of concepts and technologies that will improve capabilities circa 2010. The key phrase is to improve capabilities, since the Army's vision is a conception of organizational effectiveness. The Army vision appears to be a linking of the existing Army XXI program and documents to Joint Vision 2010. Indeed, the Army After Next project, the Army's current means of looking

beyond 2010 is the link to the so called revolution in military affairs.[26] Further evidence of this evolutionary approach is provided by the kinds of equipment, improved versions of the M1 tank, the Bradley fighting vehicle, etc., to be fielded as part of Army XXI, the probable structure of Army Vision 2010. Of the three services, the Army is the only service that directly justifies its relevance in the twenty-first century. This justification is important, as will be shown the USAF presents itself as being uniquely qualified to operate in the changing strategic and operational environment, perhaps unfettered by the other services.[27] In this regard, Army Vision 2010 proposes an essential conclusion--any service can deny and destroy, but only landpower can "exercise direct, continuing and comprehensive control over land, its resources and its peoples."[28] Preparing for the future requires a balanced approach that may not get it right, but will not get it wrong either. This paper states that "historically, we have not had the exact army we needed when we needed it . . . [but it was] never truly wrong because . . . [the Army had] core capabilities . . . [and] agility and flexibility."[29] This conclusion flies in the face of the positions of many of the vocal proponents of change.

Army Vision 2010 postulates a geo-strategic environment that requires landpower to display resolve and determination in an uncertain world. Regions of concern include the Euro-Middle East and the Asian Arc, where countries with access to advanced technology may become sophisticated and asymmetric adversaries.[30]

The Army's vision proposes a number of operational patterns that are linked to the JV 2010 concepts of dominant maneuver, precision

engagement, full spectrum protection, and focused logistics. The Army patterns are: project the force, protect the force, shape the battle space, decisive operations, sustain the force, and gain information dominance.[31] Each of these operational patterns apply or contribute to the realization of one or more of the JV 2010 concepts, as opposed to linking to one concept in isolation from the others. This approach provides a holistic view of the conduct of operations, rather than detached execution of concept functions.

The operational patterns are realized through a series of "enablers" that are also relevant across the full spectrum of operational patterns and JV 2010 operational concepts. Key enablers include: battle command enroute and on the move; modular organizations; information dominance; lethality at extended ranges and sensor-shooter links; precision systems and engagement; simultaneous application of joint capabilities; mobility, speed and agility; missile defense; total asset visibility; and improved ballistic protection. These enablers are facilitated through the potential of new technology. Some of the key technologies are: high-speed vehicular mobility; lighter materials; stealth; sensor processing brilliant munitions; signature reduction; artificial intelligence; and sensors.

Many of these enablers and technologies are achievable in the next ten plus years; however, some should be embraced with caution or may be suspect. The linking of simultaneous application of capabilities, long-range lethality, precision munitions, and sensor-shooter links is particularly promising. The ability of Army artillery to respond to radar acquisition systems almost simultaneously is a capability

unmatched in the world. The integration of joint capabilities with the full array of space, land and air sensors will exponentially increase the lethality of the battlefield for any opponent. Of doubt is the capacity for increased mobility, high-speed vehicular mobility and lighter materials. The Abrams tank and Bradley fighting vehicle will form the backbone of Army XXI's decisive maneuver arm.[32] These vehicles, similar artillery systems, and their support systems make up the bulk of the Army's weight (tonnage) that challenges rapid deployment. None of these anticipated systems will overcome these deployment and mobility difficulties due to limitations in planned improvements--no weight reduction, not engine replacement to drop fuel support requirements--and in track suspension technology.[33]

An area of where caution is required is in the realm of information dominance. Organizations and doctrines that either come to rely on or require information dominance to operate effectively may be condemned to failure. Once the "mainframe" crashes or the information is not clear, these forces become irrelevant against another force able to operate effectively in the fog of war. While not disqualifying the Army vision, these issues bear remembering when considering force designs and operating doctrine.

Army Vision 2010 focuses on the operational level of warfare and promotes landpower as the decisive dimension in warfare. The Army vision also addresses indirectly the limitations of landpower, and the need for a balanced approach to future military operations that takes advantage of the many unique contributions that each service brings to the operational environment. This hedging strategy is based on history

and a desire to be capable in an undetermined military environment. That approach may have merit. The Army is a beneficiary of the capabilities of the other services within the Joint Vision context, and does not position itself as the primary service that can realize the full potential of Joint Vision 2010; it is a team effort.

Global Engagement

The Air Force's vision, Global Engagement, takes an approach different from the Army's when describing its role in realizing the concepts of Joint Vision 2010. Global Engagement postulates aerospace forces and organizations as the decisive component of a JV 2010 force. It appears that the Air Force sees current and future technological developments as the catalyst for realizing the collective vision of Douhet, Mitchell, and LeMay of strategic and operationally decisive air operations.[34] "The Air Force . . . recognizes the emerging reality that in the 21st Century it will be possible to find, fix, or track and target anything that moves on the surface of the earth. Global Engagement . . . is based on a new understanding of what air and space mean to the nation--the ability to hit an adversary's strategic centers of gravity directly as well as prevail at the operational and tactical levels of warfare."[35] The Air Force vision goes further, stating that "Full Spectrum Dominance depends on the inherent strengths of modern air and space power . . . Operations that now focus on air, land and sea will ultimately evolve into space,"[36] Indeed, Global Engagement proposes that Full Spectrum Dominance--the synergistic outcome of the JV 2010 operational concepts--"depends on the inherent strengths of modern air and space power."[37]

In order to effect this vision, the Air Force has identified six core competencies. A core competency is a set of capabilities that is fundamental to a service's role and that defines its essential contribution to national security.[38] The USAF's competencies, air and space superiority, global attack, rapid global mobility, precision engagement, information superiority, and agile combat support, "are not necessarily unique to the Air Force . . . [but] provides strategic focus for the vision."[39] It is not clear from Global Engagement that all of these core competencies are in fact fundamental to the USAF's roles. An examination of several of these core competencies will bear this out.

"Air and space superiority is the control over what moves through air and space . . . [and] is a critical enabler for the Joint Force because it allows all US forces freedom from attack and freedom to attack. With Air and Space Superiority, the Joint Force can dominate enemy operations in all dimension--land, sea, air and space."[40] This statement reflects a condition enjoyed by US forces almost without exception since the later stages of World War II. No marine, soldier or sailor would trade air (and now space) superiority--it is key to success on the modern battlefield. This has been the responsibility of the Air Force and will remain so.

One aspect of this core competency is controversial. Global Engagement suggests consolidation of missile defense under the USAF.[41] The threat of missile attack at all levels has increased, as the Scud attacks during the Gulf War indicate. However, missile defense has been a traditional Army mission, derived from its responsibility for air defense.[42]

Global attack is described as a capability unique to the Air Force. The core competency includes the Air Force components of the nuclear triad, missile and bomber forces, and current lethal and non-lethal means of engagement--strategic and theater lift, bomber and fighter wings. This competency will evolve due to "technological change, threats to forward bases, asymmetric strategies by adversaries . . . and growing budgetary pressures."[43] This evolution is reflected in the concept of a CONUS based, tailorable, rapidly deployable Air Expeditionary Force (AEF). This AEF reflects that CONUS based forces will become the primary means of crisis response, and therefore will be ready for combat in three days, and require "new ways of doing mobility, force deployment, protection, and sustainability."[44] This competency proposes capabilities previously associated with naval forces.

Rapid global mobility "provides the nation its global reach and underpins its role as a global power."[45] Given the reduction in US presence overseas, this competency is essential to decisive application of US power overseas. However, it is a competency that while traditionally supported by the Air Force diverges from its other core role of air and space superiority. The US Transportation Command (USTRANSCOM) was formed to better coordinate and manage the global mobility of the nation. This command was created due to inadequacies in the ability of the military to achieve rapid global mobility. In business, strategic dominance is maintained through focus and execution of core competencies in a manner unsustainable by the competition.[46] Capabilities not executed to that standard or not essential to the product of the company are outsourced or eliminated. The Air Force's

focus is bifurcated between air and space superiority and mobility. Redirection of the air mobility competency to another agency or activity within DoD would remove this distraction from aerospace superiority, the USAF's most critical focus.

Precision engagement is more than merely targeting and killing the enemy with high probabilities of success, though this is a substantial portion of the Air Force contribution. "The Air Force's core competency of Precision Engagement is grounded in Joint Vision 2010's definition."[47] However, the Air Force vision includes being able to "achieve directly or contribute to achieving the full range of joint campaign objectives."[48] The Gulf War provided many examples of the amazing results of a fledgling precision engagement capability. The same war highlighted the hazards of relying too heavily of this same capability given Iraq's refusal to quit Kuwait until landpower became involved.[49] This concept or competency, in concert with other joint capabilities, very likely will carry the day in any future conflict, at reduced risks and costs. However, the phrase "directly achieve" in the quote above reflects the Air Force's continued desire to realize the collective prognostications of Douhet, Mitchell, and LeMay.

Information superiority is the thread of continuity in all of the 2010 visions. It is the crux of the vision, and the Air Force has claimed this concept or condition as its own. The Air Force is the DoD executive agent for Battle Management and Command and Control.[50] Global Engagement states that "the ability of the future Joint Team to achieve dominant battlefield awareness will depend heavily on the ability of the Air Force's air and space-based assets to provide global awareness,

intelligence, communications, weather, and navigation support."[51] There is a raging debate between the Army, Air Force, and Navy over the Air Force's control of space based assets in this arena. Desert Storm also provides some instructive concerns over the Air Force notion of Battlefield Management and Command and Control. General Schwarzkopf generally operated from a bunker command post removed from the front, as is the standard means of managing an air campaign, yet he was unsure of the position and status of VII Corps, his main effort, at several critical junctures in the ground war.[52] The "man-in-the-chair" approach to battlefield management is not necessarily applicable to all campaigns and operations. These absolutely essential functions of C3I and DBK may also better serve the joint community in a joint or DoD activity removed from the biases of any one service.

Global Engagement clearly outlines the Air Force vision of and for the future. It is an aggressive position that suggests that the decisiveness of airpower has arrived. The focus on global attack and air and space superiority dovetail well with the capabilities and core role[53] of the Air Force. Given the demands of moving into another dimension--space--the complexities associated with air and space operations, and the unrelated focus of mobility and information superiority, it may be necessary, beyond what is required to support Air Force operations, to "outsource" those competencies. Having said that, the control of aerospace is difficult, even within one service. Control is complicated when it is a shared responsibility. In this regard, the Air Force's proposition that missile defense, and by association air defense, should fall to the Air Force may have merit.

Forward . . . . From the Sea

The Navy has not yet produced a vision specifically tied to Joint Vision 2010. This may be due in part to the fact that the Navy, perhaps more than any other force, has experienced a truly radical change in its strategic environment. There is no global maritime threat, so control of the sea, currently the primary focus of the Navy, is no longer a challenged strategic imperative. The focus has shifted to "projecting power and influence across the seas in response to regional challenges."[54] The focus has changed, but the Navy still recognizes strategic deterrence, sea control and maritime supremacy, and strategic sealift as its enduring contributions to national security. This document asserts that the US is a maritime nation, requiring a transoceanic strategy.[55] Whether this assertion is an attempt to justify the Navy's continued relevance, the area where the Navy will now perform these functions, the littorals, have great relevance. Well over half of the world's population lives within two-hundred miles of a coast.

Forward . . . From the Sea postulates that the naval forces are essential to peacetime forward presence, overseas crisis response, regional conflict and joint and combined operations. Naval forces provide for a freedom of action unencumbered by the restrictions of land bases during peace and war. Naval forces are a US sovereign presence off any coast. The ability of these forces to remain forward deployed for indefinite periods is unique, and during conflict naval and marine forces can seize base areas for follow on forces.

This short vision recognizes that no "single service embodies all of the military capabilities needed to respond to every situation and threat."[56] Further, Forward . . . From the Sea suggests caution regarding the way ahead so as "not to jeopardize [naval] readiness for the full gamut of missions and functions for which [the Navy] is responsible."[57] This vision does not integrate Navy capabilities into the Joint Vision concept. The Navy focus is changing, but technology and time require renewed emphasis in order to maintain strategic dominance and future relevance.

Evolutionary Force Design

Given the joint and service visions of change, a specific vision or template of the future force needs to be developed. As Secretary Windall stated, the future force requires a vision specific enough for action in order to create a clear route to strategic dominance. Joint Vision 2010 does not achieve this level of specificity. This may be due to the CJCS and Joint Staffs' lack of executive authority or the absence of a national vision or strategy for 2010. Regardless, the routes to strategic dominance have been defined to varying degrees by the individual services. This is not a blueprint for efficiency or effectiveness, but rather a formula for disjointed action and inefficiency in an era of constrained resources. Unlike the recent past, in the future environment, resources--funds, manpower, etc.--will be too constrained to justify any attempt to realize four visions of the future. A top down and specific vision of change tempered by the historical record, reason and judgment is necessary if a unified,

effective, efficient, and relevant military capability is to be realized in the years ahead.

This thesis will specify a path for the joint and service components, at the strategic and operational levels, focusing on the warfighting concepts of Joint Vision 2010, but linked to the strategic requirements outlined in chapter 4 and steeled against the environment portrayed in chapter 5. This path or organization is based on an amalgamation of the Joint and Service visions, historical perspectives at the strategic, operational, tactical levels, issues raised by Directions for Defense,[58] and the application of the concepts of effectiveness, efficiency and avoiding obsolescence discussed earlier.

While reflecting the essence of Joint Vision 2010, this path includes other considerations. Joint Vision 2010 lacks a strategic approach; concepts and change are limited to operations and organizations below DoD. Also of importance, Joint Vision 2010 recognizes that the future force will probably use existing systems. This suggests that the follow-on to Joint Vision 2010 may require radical change in organization, doctrine and technology. Further, the concepts under consideration by the Office of Net Assessment and the Army After Next reinforce this conclusion and radical change could become debilitating without an intermediate step.[59] For this reason, interim change must be contemplated to allow the armed forces to transition to the force after next without institutional dislocation. The present and near term future environment appears predictable enough, providing an operational pause where change and experimentation can be conducted and the force can grow safely into that change. Beyond 2020,

the future is not so sure, and radical change and institutional dislocation could be untenable. Adaptive, intermediate and incremental change can mitigate this possibility.

The force described below changes roles and functions, cuts across service boundaries, and most importantly suggests substantial change above the operational level. Since the 1986 Goldwater-Nichols act, DoD and the strategic military have not considered or executed wrenching change. True strategic dominance requires more than changing the shop floor, the front office and corporate headquarters must change too. In specific instances key items of equipment, systems, or concepts in need of technological solutions will be addressed.

A Joint Organization for Change

Changing an organization only at the bottom reflects an organizational effectiveness approach to modernization. While the joint and service visions postulate change at the operational level, change at the joint and Defense Department level apparently is not under consideration. It is instructive that the last large change to the Defense Department came about through Congressional action, not a defense secretary or CJCS's vision for the future. In order for change to be genuine, it must happen at all levels including the top.

The Joint organization of the Department of Defense currently reflects the Chairman and Joint Staff--with no executive authority, nine geographic and functional commanders in chief (CINC), and several defense agencies such as the Defense Intelligence Agency, which often have dual responsibilities to the CJCS and the Secretary of Defense. Further the services that provide forces to the CINCs are separate

entities under separate, and often independent, civilian secretaries. This arrangement results in service infighting, redundancy, disunity of command, ineffectiveness and inefficiency.

Service infighting is evidenced in the texts of the various visions previously discussed, congressional testimony, and the debates over relevancy emanating from the QDR. Redundancy is a continual issue as evidenced by the firestorm of criticism that arose during the Base Force and Bottoms Up Review processes. Examples include four air forces (the Air Force states there is only one Air Force and three air components), four helicopter fleets, a substantial "navy" within the Army, and various depot level support activities, training regimes and the like. Disunity of command was most recently evidenced by the refusal of the Air Force to modify its rotation policy to provide CINCCENT with more continuity within the force in Saudi Arabia. This lack of continuity was one factor contributing to the Khobar Towers disaster. Ineffectiveness is evidenced by the way a Marine commander owns all dimensions of an assigned area of operations from the ground to the edge of the atmosphere. This type of control precludes effective Air Force or Joint air space control and management. Another example is the inability of Army and Air Force aircraft to operate in areas beyond the Fire Support Coordination Line. The Army sees this measure as permissive, while the Air Force sees it as a restrictive measure providing the Air Force with exclusive control. An illustration of this comes from Desert Storm. Attack helicopters from VII Corps were unable to attack Iraqi columns fleeing north due to the area being "roped" off for Air Force aircraft incapable of matching the killing capabilities of

the Army AH64s.[60] Inefficiencies are reflected in the present attempt to acquire the JAST and the F22 rather than a single air frame for the future.[61] The issue is to solve these problems while maintaining strategic dominance.

Past as Prologue

Four years after implementing Goldwater-Nichols, the US conducted two operations that illustrate the strengths of the reforms and the weaknesses that still exist in the DoD unity of effort. Panama, an admittedly unique case, highlighted Goldwater-Nichols' strengths. This was aptly illustrated by Bob Woodward's depiction of the Chiefs of Staffs' a final review of Blue Spoon, the Panama invasion plan. Reservations and changes were deflected by a CJCS no longer hostage to committee rule so prevalent prior to Goldwater-Nichols.[62]

Conversely, at the start of Desert Shield, the conduct of the newly appointed USAF Chief of Staff, General Dugan, illustrates a weakness in the present system. While the Secretary of Defense and the CJCS are charged with running operations,[63] General Dugan presented a vision for the conduct of the upcoming offensive operation and airpower's role that was at odds with the collective wisdom of the Chiefs, the CJCS, and most importantly by the war fighting CINC, General Schwarzkopf.[64] General Dugan's stated proposition that airpower was the key to success, and that other operations would be a side show, was contrary to the plans being acted on and flew in the face of the concepts of unity of effort and command. Dugan was fired, but with clear command relationships this incident might never have occurred.

Fallout

This second example illustrates of the problems still experienced within DoD due to the independence of the military departments, and the lack of a clear definition of the CJCS's authority over the service Chiefs of Staff and the CINCs. The present system still allows each service to work within a bureaucratic system that prevents a coherent and unified approach to defense planning and operations. Examples include service resistance to the Vice Chairman's role in vetting and certifying service equipment programs through the Joint Readiness Oversight Council (JROC) and Joint War fighting Capabilities Assessment (JWCA) process.[65] This system is set up to force each service to justify its structure and systems in terms of requirements articulated in the CINCs war plans.

Another illustration deals with the previously discussed CJCS publication Joint Vision 2010 and its failure to address the hard choices and articulate a vision for future warfighting that is divorced from the narrow, parochial interests of any one service. Despite the independence of the CJCS from the other Joint Chiefs, this "vision" is void of vision, and leaves the definition of each service's role in future warfare to the vagaries of the bureaucratic process. By not addressing or defining any service's function, Joint Vision 2010 leaves each service to define, de facto, its own roles and functions in an incoherent, disjointed and disunited process.

The danger, in this time of peace and defense frugality, is that this bureaucratic solution may not get it right; a problem the distinguished historian Michael Howard attributes to most peacetime

military establishments.[66] During the Reagan build up, or the inter-war period between World War I and World War II, the nation could risk this incoherence. The fact that the small Army and large Navy of the 1930's did not prevent war was a mistake, but due to the realities of transportation and the Atlantic and Pacific oceans, the Nation had the luxury of time to reorganize and change its force makeup and strategy.[67] Presently, the nation cannot afford to fail to get it right--the world is far more interconnected and interdependent, reaction time is too fast and the missions too varied--the cost is failure and lost lives.

Suggested Unifying Changes

The bureaucratic approach, with each service competing for power and position is not reflective of the military as an organization. The military is a command and chain of command driven organization. Unity of command comes from having clear, unambiguous command channels. The present system does not provide a truly unambiguous set of command relationships. One method for changing this would be to constitute each service chief of staff as a commander of land, aerospace, naval and marine forces, with the CJCS the joint military commander (recognizing his de facto role at the military director of the CINCs as exercised during the Gulf War[68] and as specified in DoD 5100.1[69]). The CJCS would be responsible to the Secretary of Defense and the President for organizing, training and equipping the force to meet the national security strategy and the specified requirements of the CINCs. Further, the CJCS would be responsible for planning and executing operations in conjunction with the CINCs. The CJCS would serve as the military commander for strategic operations and each service chief would act as a

supporting commander to the war fighting CINC. In essence, the CJCS would act in a capacity similar to that of the World War II SACEUR, with the President and Secretary of Defense role reflecting that of the Combined Chiefs of Staff's in conjunction with their present role.

To ensure civilian oversight and control, the service secretaries should be re-designated as under secretaries of defense for land, aerospace and maritime operations, etc. This establishes a clear senior-subordinate relationship between the Secretary of Defense and the service chiefs, something not always present now. It also establishes uniform civilian control over all force providers, functional CINCs included.

In order to remove service bias from critical and unpopular programs and functions within each service and in the joint arena, two functional CINCs, CINCTRANS and CINCSOC, would become service commanders with corresponding assistance secretaries of defense. CINCTRANS has authority to task, but no forces assigned or budgetary authority. The Navy and Air Force both resist spending their budget on strategic lift. Despite the enormous time required to deploy forces to southwest Asia, the Navy still only has six fast sealift ships, and airlift is dependent on an aging fleet of C141s, C5As, and a handful of C17s. This being true, the Navy continues to build men of war and the USAF expends dollars on the F22, even when no apparent strategic requirement exists for them. What does exist is a force projection requirement, that still stands at seventy-five days for a five division corps to deploy.[70] CINCSOC currently has budgetary authority, but still must fight through each service chief. Neither situation is conducive to effective

operations in these two critical areas. Space will require similar attention.

In order to improve efficiency and provide the services focus, CINCTRANS would also be redesignated CINC Logistics (CINCLOG or LOGCOM). This command would absorb the transportation and sustainment requirements for theater operations. This provides a focus on theater or joint logistics that removes non-core competencies from the Services' purview. This reorganization places these competencies where they will receive the kind of focus so celebrated during Desert Shield under General Pagonis, but without the ad hoc nature and time requirements. Essentially, all logistics functions above the Corps, MEF, and Wing would be run by a joint logistics command. This would relieve the Army of responsibility for theater communications zone operations, support of Marine units not attached to a Corps, and similar functions. Likewise, Air Force wings would draw support from joint regional logistics commands. All sea- and airlift, port and rail, theater army area command (TAACOM) functions would become joint, and organized that way. Focused logistics would have a face and a single, focused executor.

Another area that requires focus and removal of service bias is the Joint Vision 2010 concept of Information Dominance. This concept is dependent on two areas, intelligence and space support. The Air Force has preeminence in space, and the defense intelligence function is spread across the Defense Intelligence Agency (DIA), the National Security Agency (NSA), the National Reconnaissance Office (NRO), the National Imaging and Mapping Agency (NIMA), and the services intelligence activities.

The present clash between the Air Force on one side and the Army and Navy on the other, over access to and application of space systems is detrimental to ensuring that the right systems are acquired and employed effectively and efficiently. The issue of battle management and the advisability of the Air Force continuing management of this program has already been discussed. A SPACECOM unfettered by service bias on direction and focus, as with USSOCOM, would better serve the joint war fighters and the services. SPACECOM would be the proponent for all space reconnaissance, navigation and communications systems. Space dominance from a weapons and defense perspective would still remain with the Air Force, redesignated the Aerospace Force. This ensures a balanced approach to space assets.

Intelligence is the provision of dominant battlefield knowledge to the commander, coupled with analysis of capabilities and intentions. The variety of organizations involved in this process requires an "army" of experts to descend on a command when these products are required. Establishment of a Defense Intelligence Command, that incorporates the functions of the DIA, NSA, NRO, and NIMA (in conjunction with SPACECOM), would provide a fused product that could uniformly pull from all sources that information a joint strategic, operational or even tactical commander would require. Currently, much of what is called battle space knowledge is unfiltered, unassessed information that a commander may not know what it means. As with past "perfect" information--Kassarine and Peleliu have been previously discussed--commanders can and do interpret it incorrectly. Fusion at this level should work to fix this information overload, and replace it with a refined, "pulled" picture

(the commander specifies what he needs to know and it flows to him over a military information superhighway) that helps the commander make decisions.

The DIC would also conduct the complementary function of conducting offensive information operations. While each service would have similar capabilities within their functional areas, strategic and operational offensive information operations are very sensitive and should remain under civilian control. DIC answers first to the secretary of defense, ensuring this important link.

The world will shrink with the advent of the information age. This shrinkage suggests that the function of and requirement for geographic CINCs may change. This implies substantial revision of the Unified Command Plan and how the remaining CINCs fight joint forces. Specifics in this area are beyond the scope of this thesis, but as with the rest of defense, change may be necessary.

Wartime or conduct of crisis operations would result in changes to the command relationship, providing the combatant CINCs, who--through the CJCS--answer to Secretary of Defense and the President, with the power to task the service commanders directly, but with the concurrence of the CJCS. In that way, the warfighting CINC can direct particular requirements to include rotation policies, etc. and reach back to access capabilities outside of their areas of responsibility (AOR). Functional CINCs would answer to the CJCS, who would direct the support of an operation, much like General Marshall did during World War II.

The present situation within DoD is a melding of service tradition, the history of the War Department and the Department of the

Navy, the 1947 National Security Act, and Goldwater-Nichols. It is a hodgepodge that provides too much reliance on a bureaucratic system in an organization, which, within its uniformed component is a chain of command based organization. Changes such as those suggested here break this paradigm of infighting, and establish a system that the military is designed to operate within. Civilian control is maintained, but efficiency and unity of command and effort are achieved through the establishment of a clear relationship between the Combatant Commanders and the CJCS and the service chiefs. More importantly, necessary change starts at the top of the organization, providing an impetus for change at the mid and lower levels. In this way, DoD may get it right and not suffer the disasters of previous failures such as Kasserine Pass, Task Force Smith, Vietnam, and Desert One.

The change described above, transitioning from the current bureaucratic model to a new, leaner, command based, and more functionally oriented structure, is necessary to provide for more agile, unified operations.[71] The focus is on reducing headquarters, cutting competing, redundant capacities, and increasing the efficiency and effectiveness of the departmental and joint components of the US national military security apparatus. The specifics of the roles, functions and missions fulfilled by the various services will follow.

The Services in an Evolutionary (but Radically Intermediate) Force

Based on the previous discussion, each service's roles and functions should change. Joint Vision 2010 refers to agile organizations.[72] This proposed reorganization focuses the services, as forces under a functional CINC, on a specific dimension of the battle

space. This allows more effective tailor to task organization at the joint level--the current and future American way of war. Additionally, while the current trend is to embrace technology as the path to future strategic dominance, history shows that organizational and doctrinal change is more important than technology. As discussed in Chapter 1, Napoleon's greatest advantages were in his organization and doctrine. His opponents had access to the same technology. Some like Wellington may have been Napoleon's intellectual and operational match. However, none were able to exploit his organization and doctrine, certainly during the early years of the French Empire. Likewise, the Germans' exploitation of superior organizations and doctrine took existing technology available to all the belligerents of World War II--tanks, radios, aircraft and the like--and created a strategically dominant way of war. In both examples, organizations and doctrine were the decisive elements providing different ways of executing a similar function--war. This point must not be lost as the US military pursues the so-called revolution in military affairs, sticking technology on existing organizations and equipment probably will not result in revolutionary capabilities. The approach must be holistic starting with organizations and doctrine, the technology will come regardless. Incremental change in organizations and doctrine now will mitigate the potentially wrenching change that may result when existing systems wear out and information age technology comes of age in about 20 years.[73]

Given budget realities, the changing geo-strategic situation, in the interests of effectiveness and efficiency, and most importantly maintaining strategic dominance, the services must change. This change

is not necessarily as articulated in the services' JV 2010 linked visions. This change requires some radical wrenching of accepted paradigms out of the bedrock of tradition. At the same time it also must recognize the historical record, the unique capabilities of each service and the value each brings to solving the strategic and operational problems the US will encounter. In some cases change will require modification of accepted roles and functions, or a reduction in focus, in others it will require reduction in forces, and in all cases it will require change in organizations. The EMA force structure to follow provides substantive detail, beyond that of the RMA force discussion that will follow. As touched on in chapter 3, suggesting change to an existing organization attracts more attention and resistance. For that reason, the detail to follow is meant to obviate the inertia and reactive resistance to suggested change. Regardless of where the US military winds up in 2010, the opportunity to act on change is real at this moment. Strategic dominance is ephemeral; action today may be impossible tomorrow.

An Army for 2010 and Beyond

The Army must change to meet the needs of a nation dependent on a force projection military. This requires leaner, more lethal, more agile, more deployable, and more capable forces. Additionally, the Army more than most of the services will see substantial change as its present equipment sets begin to wear out around 2015. This collection of requirements dictate that change begin now, both to meet near term demands and to begin to transition the organization for the future. LTC Douglas Macgregor, currently the director of the Army's Battle Command

Battle Lab, has written a very useful blueprint for the future US Army in his book Breaking the Phalanx. The following examination of the Army in 2010 will use his prescription as a template, deviating in some instances. His analysis, the product of a year long fellowship at CSIS, is exceptional. He clearly addresses how to develop a more deployable and capable force, with a flattened organization, that is readily integrated into joint operations.

The Army, or Land Forces, would reorganize generally in line with Breaking the Phalanx. The Army's primary role of conducting sustained land combat would remain. The force will focus on corps-JTF and below fires and maneuver operations. In fact this would be the Army's sole focus. Its functions should be limited to maintaining forces to: defeat enemy land forces and to seize, occupy, and defend territory; conduct force projection airborne and amphibious operations; conduct electronic warfare and operate land lines of communications at corps and below; provide military occupation forces; and conduct close air support (CAS).[74] CAS would be provided by weaponized UAVs at division and corps levels. Theater high altitude air defense (THAAD), air defense above corps, and missile defense would move to the Aerospace Force. Special operations, psychological operations, and civil affairs would be conducted under the control of USSOCOM.

This leaner force structure would consist of eight active divisions under three corps equivalents. Given the increased lethality of the modern battlefield, mobility will be key. Due to this reality, all forces will be mobile by ground or air. Six divisions will be heavy and two will be airborne and air assault capable. Each division will

consist of three all arms brigade groups, commanded by a brigadier general and capable of sustained independent operations. Macgregor postulates a close fight assistant corps commander in lieu of a division command structure.[75] Span of control has the potential to become unmanageable for a single commander with more than two division equivalents. Additionally, the division position is unique to warfighting and should be retained.[76] The positive aspects of retaining the division in the Army organization can be reduced to two central considerations. First, war and command are a human endeavor. Training and fighting under the same commander provides an intangible benefit not realized by Macgregor's design. Second, no matter what the operation, the close fight requires strict attention. Removing the division from the command structure would require the brigade commander to focus on the fight, on what his corps or JTF commander's next move was, and to look out beyond his current operation. This trisected focus would distract the commander from his most important focus--the close fight with battalions and soldiers fighting and dying.

The retention of the division requires change in its organization and focus. The division would not be a resource provider; the all arms brigade group has its own resources. Rather the division's focus is on command, control, communications, computers and intelligence (C4I), and fires from its own missile, rocket, and tube artillery, and attack aviation. Sustainment of this force is generally provided by a throughput from the JTF or theater LOGCOM elements. Division support operations consists of managing requirements and ensuring they are filled from LOGCOM to the brigade groups' support command. Land Force

reserves would be reorganized to provide current support functions but under LOGCOM and some combat functions. Combat units would provide more corps fires, lift aviation, and three divisions (two light, one heavy) that are oriented on stability operations in seized territory. Basic organizations of brigade groups and division organizations are at figures 2 and 3.

Land Forces distribution would be five divisions under two corps headquarters in CONUS and three divisions outside of CONUS. One light recon-strike group would reside with a multi-role corps with its three divisions, one heavy and two airborne-air assault. One heavy recon-strike group would reside with another corps with its two heavy divisions. Another heavy recon-strike group would be stationed with a JTF in Europe along with two heavy divisions. The last heavy division would remain in Asia, perhaps split between Korea (two groups) and Hawaii (one group). Future forward presence, though smaller, is still necessary to provide for rapid small unit responses in those regions, to represent US commitment, and to maintain US leadership and influence.

The key here is that there are no corps headquarters without troops, as is the case with I Corps at Fort Lewis today, nor any posts commanded by general headquarters not tied to warfighting. The Army reorganization would be total, eliminating unnecessary layers of staff and dismantling structures that are leftover from the Cold War. These changes will reduce the personnel account and free up funds for new equipment and capabilities. In this regard, Macgregor's dismantling of Forces Command (FORSCOM) and Training and Doctrine Command (TRADOC) is essential,[77] as is the closing of posts where forces no longer reside or

do not have the required rapid deployment air and port facilities close at hand. In the TRADOC example, the Army strength has dropped almost one third, and division strength by one half, and yet two-four star staff headquarters still remain. This new command would absorb the functions of TRADOC and FORSCOM, controlling the active duty Land Force in CONUS. A similar command would do the same for reserve forces, reducing the multitude of numbered Armies in CONUS to one, and it would assume corps or JTF duties as well as overseeing reserve training and operations.

While maneuver brigade strength is reduced from the current thirty-two to twenty-four (three per each of eight divisions), each of the twenty-four brigade groups is a fully capable, all arms organization. The lethality of the organic organization, coupled with its links to joint force capabilities through the C4I battalion (see figure 2), increases the capability of each brigade group at least by half. This allows for more dispersed operations and enhances the lethality of each group.

This land force is large, much larger than many would think necessary in this age of information and long-range precision strike. However, this force's tooth to tail ratio is increased substantially through the realization of focused logistics by LOGCOM. Further, decreases in landpower would result in decreased deterrence and allow LRPS to dictate stalemate. As World War I clearly demonstrates, only emphasis on maneuver can overcome the dominance of fires. The US does not fight wars on its own territory, and therefore must be offensively oriented in order to defeat an enemy already in place. Landpower is a

critical component of any offensive operation that is predicated on forcing an opponent to retire.[78] To an extent quantity has a quality all its own, regardless of the technological edge. Additionally, given the global interests of the US, landpower requirements go beyond deterring or conducting a single conflict.

This organization better actualizes the concepts presented in both Joint Vision 2010 and Army Vision 2010. The brigade group organization provides fully capable pieces that can be tailored to any joint operational task, providing for more agile joint task forces. The modular design allows for self supporting forces to be deployed in support of force projection operations. The airborne-air assault groups, in conjunction with Aerospace and Naval Forces, allow US forces to force entry without regard to available ports and airfields. Land Force assumption of the CAS function allows aerospace forces to focus on aerospace supremacy and long-range strike. Force projection, coupled with self sufficient, mobile, all arms maneuver groups better support the concept of dominant maneuver and the operational pattern of decisive operations. The Land Force focus on the corps equivalent area of operations demands focus on shaping the battle space at the appropriate level. Tailored, all arms brigades have standard logistics requirements better supporting focused logistics. In the same vein, using divisions only for command and control and exploitation fires also reduces the logistics footprint.

An Air Force for 2010 and Beyond

The Air Force. Redesignated Aerospace Forces, it will focus on aerospace superiority, and long-range precision strike.[79] This focus is

a variation of the USAF competencies of precision engagement and global attack using intercontinental ballistic missile (ICBM), bomber, fighter and various PGM capabilities. The Aerospace Force will focus on control of an expanding third operational dimension through space denial and protection of space assets, air denial and superiority, and air and missile defense outside of maneuver areas of operations. This force would consist of ten active and ten reserve multifunctional air expeditionary wings (AEW) reflecting the Air Force constitution of the Air Combat Command, but at a lower level.[80] Two AEWs would be stationed in Europe, with two in Asia and two on rotation in Southwest Asia or another contingency region. Reserve wings would also provide CONUS defense capabilities. See figure 4 for a suggested AEW organization.

Roles and functions changes include the loss of close air support, air logistics support, air transport, aerial imagery, provision of launch and space support, and air to air refueling. Land Forces assume the close air support function. LOGCOM assumes the air logistics, air transport, and air to air refueling (generally for all services) functions. SPACECOM assumes the launch, space system and overhead imagery functions and DIC assumes the information superiority function. This does not preclude capabilities to support aerospace supremacy or global attack operations, but removes the responsibility to support the joint force. Nonetheless, joint support is provided by joint functional commands.

The key is that Aerospace Forces focus on control of the third dimension of the battle space, including missile defense, and providing the joint commander a global attack capability that immediately begins

setting the conditions for follow on dominant maneuver components or other operations. This capability must be initiated almost immediately while other forces are in the force projection phase of an operation. In this manner Aerospace Forces provide the joint commander with the ability to achieve cross dimensional attacks and decisive speed and tempo.[81] These achievements support deploying forces being employed immediately upon arrival.

This proposed aerospace force allows a critical focus on functionally aligned competencies and exploits the Air Force's stated focus on air and space power. Control of these dimensions is essential to the conduct of any operation. Removal of essential, but distracting functions such as airlift and CAS allows for more efficient application of this forces energy, and ensures a robust joint capability in those areas, unfettered by service bias.

Intercontinental ballistic missiles (ICBM), mentioned previously as a component of global attack, are currently part of the nuclear triad. A capability that must continue, but perhaps in other forms. The existence of this force within the continental US may actually invite nuclear attack against the nation.[82] The bomber and submarine fleets are far more survivable, and may not invite preemptive strikes on the US. However, ICBMs armed with conventional or brilliant submunition warheads could provide substantial effects for a joint commander. This force could strike within moments of an incursion, do so precisely--ICBM probable error is already very low, and provide time for strategic bombers to arrive on the scene with shorter range cruise missiles,

precision munitions or even dumb bombs, depending on the desired effects.

Space superiority is provided generally through Strategic Command (STRATCOM), using Aerospace controlled space protection and attack assets. Elements of CONUS security wings of the reserve force and systems within an AEW would have anti-satellite weapons. Other national level systems are beyond the scope of this study, but the force with responsibility for organization, doctrine and technology would be the Aerospace Force.

The reduction in air wings is not substantial when compared to the base force proposal of fifteen active and eleven reserve wings, or any of the more restrictive proposals made by Les Aspin.[83] The ten and ten proposal is over a one third reduction from the 1991 level of twenty-two and twelve; however, given anticipated increases in the capability of precision munitions and information superiority, this force will be more capable. Using Iraq's 1994 feint against Kuwait, Paul Braken postulates that given PGMs with a fifty percent kill probability half of Iraq's 1,700 armored vehicles could have been destroyed by two-hundred aircraft flying two sorties on one day.[84] This assessment may be optimistic, but it provides insight into the increased capability of each wing. Again increasing lethality, coupled with reasonable reductions in numbers of systems and personnel should free up funds for munitions procurement and future systems.

This aerospace organization provides a focused aerospace superiority force that is functional and tailored to conduct decisive air and space operations for the joint commander. The AEW organization

provides a multi-role element that provides a joint commander with a full range of air and space operations. It is uniquely organized to conduct global attack, and provides the wing commander with all the assets to be a JTF joint force air component commander (JFACC). It does not depend on ad hoc organizations to achieve superiority within the third dimension.

A Navy for 2010 and Beyond

Whether the US is in fact a maritime nation, as Forward . . . From the Sea contends, or not, the sea provides three important capabilities that the US must maintain. These capabilities are: the passage of commerce; the passage of military force in support of diplomacy or land, sea or air warfare; and the exploitation of resources.[85] These capabilities are vital to the US and the Navy is the only force capable of protecting and sustaining them. For this reason, seapower is still a very vital component of a military strategy. Based on protecting these capabilities, the Navy's warfighting focus should be: on command of the sea necessary for US operations; being able to challenge and prevent enemy use of the sea; and being capable of securing transport and projecting force on to land.[86] While this focus is consistent with current requirements, the future threat environment and technology points to fewer forces being necessary to accomplish them.

Naval Forces will focus on sea lane protection for any MTW and littoral operations. This will reduce structure, freeing funds for new system procurement and improvements to existing systems. In line with the functional orientation of this proposed reorganization, global mobility forces and functions previously executed by the Navy are

assumed by LOGCOM. The aircraft carrier will still exist as a viable platform, but will be supplemented by an interim arsenal ship derived from decommissioned Trident submarines, changing from an SSBN to an SSAN (about one fifth as capable, but readily available and cost effective). These submersible weapons platforms are difficult to impossible to detect and would support precision strike operations and compliment aerospace forces in their global attack role.

The aircraft carrier will remain as a force projection platform and strike operations platform. Despite Air Force claims of global strike capabilities, land based aircraft have limitations that sea based aircraft can overcome, particularly in the opening stages of a conflict.[87] Carrier battle groups (CVBGs) operate on a four for one ratio, this is too costly for the nation to sustain given twelve in the present force. However, the capability must be retained as these platforms provide decisive and responsive capabilities.[88] CVBGs should drop from twelve to eight, with the remaining four carriers placed in a ready reserve status to serve as forced entry platforms as was executed for Haiti. This would provide only two CVBGs, one east and one west, for routine operations. Still, between four and six (two on station, two returning and two preparing) could be tasked for a crisis operation. This would provide several hundred aircraft for strike operations.[89]

Naval roles and function changes are minimal in meaning, but substantial in action. The Naval Force is still charged with seeking out and destroying enemy naval forces, suppressing enemy sea commerce, maintaining general naval supremacy, protecting sea lines of communication, establishing local sea and air supremacy, and other land,

air, and space operations essential to naval operations.[90] What has changed is the focus from open sea control to the littorals. The high seas can be controlled from space through observation, from the air, and with submarines. Sea lines of communication can be maintained on an as needed basis based on threats and during conflicts. Use of arsenal ships, refitted one-hundred missile Tridents or new five-hundred missile ships, can also limit the requirement for less survivable and capable ships. Given the probable threats of China, Iran and India, Naval Forces can focus operations in those regions. Constant presence of major naval formations in other areas may no longer be necessary. This reduced focus should result in a reduced hull requirement.

The Marines of 2010

The Marine structure is mandated by law (10 US Code Title 10, Section 5063) at three divisions, three aircraft wings, and supporting arms. The ground component is generally infantry, there are two tank battalions in the entire Corps, and usually employed at the battalion level. Indeed the Marine Expeditionary Unit (MEU) is a battalion landing team, with a tank platoon, artillery battery, and some light armored vehicles (LAV), amphibious assault vehicles and the like. There is a small aircraft compliment including six Harriers, helicopters to lift about one company and possibly some F-18s if a carrier is in the area of operation. Even at the Marine Expeditionary Force (MEF) level, this service does not routinely operate in force packages large enough to be decisive on land. One motto states that the Marines win the nation's battles. Land warfare requires capabilities beyond what is currently in the Marine organization. The Marine organization is too

light to fight without Army support in medium to high intensity conflicts, as the attachment of the Army's armor Tiger Brigade to the Marines during Desert Storm illustrates. This service does not normally deploy and operate at levels above brigade and the focus of most operations is on the MEU. This focus provides an opportunity to change the Marines and establish a unique organization that provides a decisive capability to the joint commander.

The Marines would be reduced to two division equivalents under USSOCOM, providing three to six forward deployed Marine Expeditionary Units, special operations capable, (MEU(SOC)) at a time from the eighteen available battalion landing teams. This new maritime commando and OOTW force would conduct global scout and target acquisition operations, forced entry (port, airfield, and beach seizure), limited objective attacks, and stability operations. Amphibious operations are special operations in the same vein as a Ranger airfield seizure. The impact of this reorganization is that Marine land force formations would no longer be available to the CINCs for sustained land force operations. The uniqueness of this approach is that the Marines can deploy and immediately begin realizing true precision strike capabilities for the joint force commander.

The Marines would reorganize along the concept of British Special Air Service units. Battalion landing teams start from a four man cell designated as a team; two teams make a squad, six a platoon, twenty-four a company, and so on. This organization would allow four man teams to be flown in by V22 from extreme over the horizon distances, land with sensor and weapon laden all terrain fast attack vehicles, and conduct

mobile reconnaissance and target acquisition in support of forced entry operations, precision strike, and denial operations. These teams when combined into larger formations as described above would conduct raids and key facility seizures in support of forced entry operations, deploying from converted Trident submarines, or by air or LCAC from over the horizon. This force is where the transition to the force after next begins. Marine armor and artillery would be discarded. Marine air (fixed and rotary wing) would remain, as would LAVs and amphibious assault vehicles (or equivalents). The air capability is essential to insertion support and fire support capability.

Marine deployments would be based not on routine float schedules, but on a deliberate analysis of potential problem areas, and locations requiring off shore US presence.[91] As a rule of thumb, at least one MEU(SOC) would be deployed east and west to support deployed CVBGs or respond to a contingency in a separate region. Traditional MEU missions such as noncombatant evacuation would be a major consideration for deploying a MEU to a region, not routine presence, unless it is a strategic requirement for political or military reasons.

A Special Operations Force for 2010 and Beyond

Special Operations Forces (SOF) will become an accession service drawing from the functional force CINCs (Land, Aerospace, and Naval) and the Marines for troops to become special operations forces. The Marines would be a part of USSOCOM, essentially as maritime Rangers, though larger in number due to MEU(SOC) float requirements. SOF must provide forces that are capable of augmenting space and UAV acquisition to make LRPS a reality. These forces would also be essential to peacetime

engagement military to military contact operations, OOTW, and support of counterinsurgency operations.

Evolutionary Force Development Priorities

While the organization and roles of the forces described above reflect a radical evolutionary approach, these organizations cannot realize their capabilities without changes in equipment. Each service has its own current modernization priorities, all of which are not essential to this suggested path to future dominance. Likewise, some of these programs may hinder the military's ability to meet future requirements. Some priorities for equipment and technology exploitation that would assist in realizing the capabilities of the EMA force are described below.

Land Forces require several significant technological fixes. Land forces must have mobility and must be deployable. Current force modernization programs are contrary to these requirements. First mobility is not enhanced by the cessation of UH60 production, at least as an interim fix; it requires about three UH60 battalions of between twenty and thirty helicopters each to lift the combat forces of a brigade group. Second, the M1A2, M2/3 Desert Storm variant, and the Crusader 155mm howitzer fail to provide rapidly deployable forces. The M1 weighs about seventy tons, the M2/3 weighs about thirty-five tons and the Crusader system weighs in at about one-hundred tons with ammunition carrier. These systems cannot be flown in by air in any reasonable configuration, heavy brigade group or larger. The current figures of seventy-five days to put a five division corps on the ground by sealift is not decisive in this interconnected, information age. The near term

competition to the M1 and M2 appears to be non-existent. Two priorities for ground mobility and deployability, at the expense of upgrading the M1, M2, and Crusader, are a lighter, more fuel efficient main battle tank (MBT) and infantry fighting vehicle (IFV).[92] Forces with a thirty ton multipurpose armored chassis could be decisively deployed by air or doubled up in existing and projected sealift systems. Artillery and rocket forces would be refitted to this new lighter, less logistically intensive platform. A fall back priority is the development of a fuel efficient engine for the present systems. If the latest Boeing 777 can carry more cargo on two engines than a four engine 747, then surely a more fuel efficient engine can be had for the M1, M2, and Crusader. Even a twenty-five percent cut in fuel requirements would have a substantial impact on logistic support and mobility, extending the range to just under four-hundred miles. To protect these systems, multispectral camouflage is needed to spoof enemy UAVs and satellites and reduce vehicle signatures necessary for acquisition by thermal munitions. The CAS mission will require a system dedicated to this function. Helicopter aviation will still have a significant role, but a weaponized UAV should be developed for CAS to provide on call coverage without regard to any human requirements and the enemy threat. The Comanche stealthy attack helicopters for deep operations and reconnaissance is essential to filling in the gaps in any dominant battle space knowledge picture. Finally, a long-range insertion vehicle such as the V22 or an improved CH47 should be procured to support over the horizon forced entry operations from the ready reserve aircraft carriers.

Aerospace forces will need a new aircraft, but the aviation community, aerospace and naval, do not require two or more systems. The F15 is touted as superior to the upcoming Euro-fighter and Russian systems.[93] The threat allows a modular advanced fighter to be developed the right way. There is no apparent threat sufficient to require rapid fielding of the F22 or the joint attack strike fighter. The fielded system should be applicable across the entire defense establishment (like the Navy's approach to the F18) and should be built to accept avionics upgrades at reduced costs to extend its life. Finally, as has been highlighted previously, the threat from missiles--ballistic, antiship, and cruise missiles--is growing rapidly. Access and exploitation of space will not be a US-only initiative. For these reasons theater antimissile defense systems, antisatellite, and satellite defense systems must be developed. This includes fielding of a C2 system with similar capabilities to the Navy's cooperative engagement capability, which links all acquisition and shooter systems in a seamless web that engages targets with the right munitions or system without hesitation.

Naval forces must develop a stealth arsenal ship and the refit of existing Trident submarines is the most cost effective and survivable option available. Surface stealth costs money and may be defeatable, US submarine technology is still unchallenged.[94] A new airframe in line with the one discussed for Aerospace forces will extend the life of any carrier battle group by allowing the group to operate farther from the coast, while executing strike operations. Landing Craft Air Cushion

(LCAC) systems should be expanded to support over the horizon strike and heavy troop delivery.

Defense Intelligence Command must fuse all source intelligence systems into a pull based information superiority system that allows the commander to designate the questions that need answering, and the system pulls the answers to him. Secondly, an information warfare service, probably in the main civilian, should be established to conduct strategic and operational offensive information strikes against any foe. This includes attacks on civilian and military infrastructure, C4I, space and service systems.

LOGCOM must develop and procure more strategic lift assets. The service will be more tied to force projection due to decreased size of forces forward deployed. Shipping will still be a requirement, even with lighter Land Force MBTs and IFVs. In order to be decisive, ship speeds must increase to forty knots and space must increase. Shipping lagged twenty-three days behind during Desert Shield, ships averaged between fifteen and twenty-three knots, and units, Army and Marine closed between nine and twenty-five days behind schedule.[95] Against a foe that is proactive in targeting or taking ports and interdicting civilian lift[96] performance like this will string out the planned and already indecisive seventy-five day standard for a five division corps to unacceptable levels. The rate of march for an Iraqi force to make it to the ports on the east coast of Saudi Arabia is in terms of ten days to two weeks. Air deployment of the maneuver arm of decision is necessary to deter such action before an opponent thinks it can achieve an objective such as this. In this regard, a follow-on to the C5A is

required, not more C17s. A flying wing concept capable of carrying substantially more than the C5 or available commercial airframes is a solution to rapidly landing decisive forces prior to the enemy consolidating on or behind a forced entry operation. Likewise, in the spirit of going where the enemy is not, military preposition ship (MPS) sets should be increased to two division equivalents in both the Pacific and the Indian Ocean regions with a joint logistics over the shore (JLOTS) capability so that forces can deploy directly off the ships onto a beach. In this concept, forces would fly to and marry up with MPS in Guam or Diego Garcia, convoy to the contingency area, upload and prepare all equipment enroute, and deploy over a beach secured by the Marines and an airborne-air assault division or group, directly into combat.

SPACECOM must have expendable, short use, backfill satellites for navigation, communications and intelligence. These low earth orbit systems would be sent up to meet theater requirements for specific periods of time when the enemy has interdicted or destroyed a similar permanent system.

Evolutionary Force Operations

Given the changes in organization as discussed above, corresponding changes in doctrine or how this force would operate are also required. The evolutionary force would exploit organizational, doctrinal, and technological change in the conduct of operations and reflect the operational concepts established by Joint Vision 2010. While embracing information and other technologies to improve the effectiveness of new organizations, this force starts on the road to the force after next through its focus on functionally oriented

organizations that fight exclusively in a joint environment. This nuance is key as the path towards strategic dominance is best achieved through organizational and doctrinal change, just as in the previously discussed business example of doing similar functions differently. The EMA force's organizational changes are generally incremental as the time period in question, thirteen-plus years, is really insufficient to exact the radical change anticipated for the force after next.[97]

Given that force modernization is limited by budget constraints, even assuming that the assumed personnel and infrastructure savings touched on in chapter 5 are correct, the EMA force would operate generally with today's existing or anticipated equipment and capabilities. Noted exceptions include the refitted Trident arsenal submarine (SSAN), a defense-wide multi-role joint strike and attack fighter rather than both the F22 and a JSF programs, weaponized UAVs for CAS, and a new lighter, fuel efficient armored vehicle chassis capable of supporting tank, infantry fighting vehicle, and artillery requirements.[98] The establishment of two 2-division sets of MPS based equipment in Guam and Diego Garcia is also essential to achieving rapid, decisive force projection into a crisis location.

With these existing technologies and the previously stated organization, the EMA force would operate generally CONUS based, except for three divisions, two to three AEWs, and two CVBGs plus accompanying MEU(SOC)s forward deployed. These forces would rotate out of Europe, Korea, Japan, and perhaps Kuwait. Ground and aerospace forces would rotate from Europe to the Gulf region of operations on an as-needed basis. The CVBGs would operate from the east and west coasts of the US

and Hawaii. This is key; for as important as Japan will remain to US interests and security in Asia, given China's rise it would be unwise to station such key assets in a nation that can be directly threatened by China. The consequences could be the inability to operate forces from Japan depending on the dispute with China. Forward-deployed land force locations would be subject to the same calculus. If the host nation was hazarded by a US presence or was uncomfortable with US forces deploying from its territory into a conflict area, then the forward location would need to be moved.

In addition to the three forward-deployed divisions, CONUS forces would be configured for rapid and decisive deployment. The two division MPS sets stationed at Diego Garcia and Guam would allow CONUS divisions to fly to these locations, well out of harms way, board ship, upload and prepare enroute, and deploy from ship into combat. This could be from either a friendly port or across a beach area seized by the actions of a Marine limited objective attack and forced entry airborne-air assault brigade groups or division operations. These initial entry forces could seize the initiative by deploying to a reinforce a friendly nation prior to hostilities to deter conflict,. or move directly into combat. Likewise, the remaining CONUS based or forward deployed land forces could load on fast sealift and be present in about thirty days. This method would provide a five-division Land Force component in theater well under the currently planned seventy-five days.

Aerospace Forces would be generally CONUS based. Two of these multifunctional forces would be capable of immediate employment, even while deploying, through the exploitation of the concept of global

attack. Once an enemy force challenged a US interest important enough to warrant an act of war, the AEWs would launch their bomber components to begin LRPS in conjunction with naval forces in the area to seize the offensive and the strategic initiative. Even as aircraft were being alerted to move ground divisions to the MPS port of embarkation, the enemy would be under attack due to Aerospace global attack capabilities.

As previously stated, Naval Forces would generally be CONUS based, yet with the number of destroyers, cruisers, and frigates larger than what is required for CVBG operations (see figure 5 and table 2), squadrons could be forward deployed to ensure a more rapid response and continued reassurance of US regional allies. Additionally, with enhancement of the CEC system and the limited capability of potential enemies to project airpower into a likely carrier operating area, the majority of the ninety or so combat aircraft could be directed towards global attack support or strike operations. Given the potential for contested actions in Asia, the Indian Ocean, and the Persian Gulf, it seems reasonable for CVBG operations to be concentrated in those areas as a matter of course. Presence in the Mediterranean could be sustained through MEU(SOC) deployments in that area and with the passage of CVBG elements through that area during transitions. Naval forces would focus on utilizing dominant battle space knowledge (DBK) capabilities to anticipate probable areas of conflict and direct its underway at sea assets to that area or areas. Upon initiation of hostilities, naval forces would strike prior to or in conjunction with aerospace global attack operations.

While this force would be fully capable of operating independently of coalition support, this would not be a desired method of operation. In some cases, as with the previous China example, it may become necessary for the US to act unilaterally in a multipolar world of diffused power. However, independent operations would be more costly, in terms of both dollars and regional relations. This force, with its improved information operations capacity and ground, sea, and air capabilities, would be positioned to provide the lead as in the past and be a full and equal partner in combat. A sense of shared hardship is always important to wartime leadership and credibility as an alliance member.

As stated earlier, proposing change to a thoroughly entrenched organization is daunting, and reception is rarely positive. Due to the operational focus of JV 2010, and the conventional organizational approaches suggested by the service visions, the EMA force required a great deal of analysis in order to justify its existence, so to speak. Failure to provide detailed analysis and justification allows for the proposal to be more readily dismissed out of hand. As proposed, this force could accomplish several different things. The focus on functional capabilities tied to a strategic vision could reduce structure and free funding for necessary modernization. This organization could establish true force projection capabilities. However, perhaps most importantly, this proposed path to future strategic dominance could begin changing the organization so that it can exploit change instead of just making it an add on.

A Revolutionary Precision Strike Force

Many of the authors referred to in the review of prescriptions for change advocate some form of precision strike warfare as the right and correct application of the information revolution. Edward Luttwak supposes that war from afar is a more usable instrument of national power. In order to achieve this notion of a more usable instrument of military power, Richard Perle recommends the US cut the personnel accounts and move rapidly down the path towards a precision strike based military force. He states that "If we are smart about smart weapons and take only smart weapons with us when we contemplate fighting a long way from home, the vexing problem of affording enough air- and sealift will become much more manageable."[99] The defense industry also has strong advocates of this approach, postulating that directed energy weapons, stand off technology and the like will end the utility of present or anticipated systems in the very near term.[100] The arguments supporting and attacking this position have been relatively theoretical in nature, hence a specific proposed organization is not available. However, the concepts are clear. This force can engage the enemy at will from distance, attacking centers of gravity in such a manner that the enemy can either capitulate or be destroyed. Combining the thrust of the body of literature--particularly Perle, Luttwak, and the Friedmans[101]--with the RMA forces postulated by the Electronics Industry Association, a general set of capabilities is outlined below.

This RMA military strategy and force structure relies on the continued development and rapid attainment of information dominance coupled with improving long-range and precision strike capabilities.

This approach presupposes inadequate countermeasures to the ability to find, fix, or track and target anything that moves on the surface of the earth. This defense strategy would radically alter DoD and the American way of war. This approach would also require substantial reductions in manpower to fund required systems.[102] Functions would be divided between aerospace or surface forces. Aerospace forces would provide surveillance and acquisition and long-range missile and stand off weapon engagements from air platforms. Surface forces would provide sea and land based long-range precision strike assets such as improved ATACMS and arsenal ship capabilities. Surface forces would also provide one heavy and two light divisional structures to allow for stability operations and security of strike forces, and special operations forces to assist in target acquisition. Essentially, ground forces would almost disappear,[103] the Navy would be reduced to an arsenal ship based service linked to the aerospace force's ability to find and track anything on the surface of the earth.[104] The remaining land component force would fall under the surface force and still contain the Army and Marines as service components in recognition of history and tradition. Presence would be based on concepts such as aerial occupation and denial operations. Immediate risks to readiness are required to realize this force capability.

The Defense Department and the joint force would be radically reorganized. For many of the same reasons covered in the previous discussion on EMA joint and defense level change, DoD and the joint force would consolidate and organize along functional lines. It would grow far smaller due to the decreased requirement for personnel on land

and at sea. Unified commands would decrease, and peacetime engagement would fall primarily to special operations forces. A proposed DoD organization reflecting these changes is at figure 7 and table 3.

A Revolutionary Aerospace Force

Aerospace forces focus on aerospace superiority, denial and protection, and long-range precision strike (LRPS) with ICBMs, ALCM, aircraft and PGM capabilities. Information dominance and space systems remain with this force. The surface, air and space are controlled through space denial and space asset protection, air superiority, and air and missile defense. This force can find, fix, track, target and destroy anything on the earth's surface. Information dominance would still be handled in the same manner as discussed in the EMA force description.

Wing organizations would change substantially. The AEW concept would still be valid, but less so in terms of organization and employment. There would be ten active and ten reserve AEWs with a predominantly bomber and missile heavy force structure, emphasizing stand off cruise missile capabilities. Fewer manned aircraft that might cross into enemy territory would be retained and those maintained would be almost exclusively stealth based. These wings might not deploy outside of CONUS, but only launch attacks from within the nation. The concept of global attack would be clearly realized.

In some cases an exclusively air based campaign cannot be waged and a surface component may be required. One instance might be a target country's proximity to hostile nations is such that overflight is

impossible. Another situation deals with requirements for deterrence through some sort of regional presence.

A Revolutionary Surface Force

Surface Forces consist of naval and land components. The naval component is generally a long-range precision strike force of refitted Tridents and arsenal ships linked into the Aerospace sensor-shooter fusion network, along with back up UAVs and short duration LEO satellites. The land component would provide nonline-of-sight precision fires and two division equivalents. Divisional forces would consist of two heavy groups, two light groups, and two heavy recon groups which secure ground for LRPS systems, conduct limited OOTW, and conduct limited exploitation of LRPS effects. SOF is still required to augment the acquisition function for LRPS. This force can augment Aerospace Force coverage in the early stages of a conflict, with prior location in the contested area, or it can provide a continuous presence in a region with the intent of precluding conflict. Reserve component forces would retain about six divisions of occupation forces for follow on operations beyond the capacity of active forces and provide additional arsenal ships for sustained operations.

Deterrence would require an advertisement of sorts to establish in the mind of an enemy the capability opposing his or her nation. Martin Libicki speaks of sharing information with potential adversaries so that they become aware of what the provider already knows and can act on.[105] In this manner the sheer volume and clarity of information would dissuade many belligerents from risking the possibility that US attack systems were as good as the US information and surveillance systems.

This radically different force will require a real investment in additional existing and new capabilities. This investment will include aerospace and naval systems.[106] Aerospace systems would include additional bomber systems to carry ALCMs to launch locations, conventional ICBMs, UAVs--weaponized and sensor, and more definitive satellite coverage. Surface naval systems will focus on arsenal systems architecture including arsenal ships, both the refitted Trident and new ships, an Aegis type system for protection and target acquisition, UAVs, and a ship launched satellite system. Savings from the substantial and rapid reductions in troop strength would probably fund procurement of more of existing systems such as long-range bombers, and new systems like arsenal ships and additional satellites.[107]

Revolutionary Force Operations

The precision strike force, using Luttwak's calculus, would be the more utilitarian force in the service of US national security interests. This is due to the inherently removed nature of its employment and the likelihood of minimum casualties. In following his reasoning, the US would be better able to shape the world and support and defend its interests through the threat or use of force. The leadership would be unencumbered by considerations of US casualties. This notion of a more useable force would provide deterrence through an understanding by potential rivals that this precision strike capability would be devastating and its use was not constrained by the possibility of US casualties.

The RMA force's capabilities would also be generally CONUS based, except for some of the naval component and perhaps two brigade groups,

one each in Europe and Asia. This token regional presence may still be required, even in this new age of warfare, as allies will still equate presence with commitment (some paradigms will just be harder to break than others). Space based sensor systems would monitor areas of vital interest, and developments in these areas would be used to direct sea-based platforms, arsenal ships, refitted Tridents and Aegis cruiser type vessels to provide a presence. Simultaneously, information links to an adversary would be established to demonstrate the extent to which the US possesses information dominance. This might also include demonstrations of capabilities already moving into the area--to reinforce the ability to find, fix, and target anything on the face of the earth.

Upon identification of a crisis, strike systems would deploy to the area by sea and air. With sufficient warning or in a situation of increasing tension, sea-based LRPS systems would be dispatched or repositioned to establish a presence. Given a rapid movement to conflict, global attack systems from CONUS would deploy in conjunction with conventional ICBM strikes. SOF and UAV infiltrations would support precision strike against hard to locate or hard to target enemy facilities and systems. Difficult targets could include systems hidden underground, in built up areas, or placed in close proximity to cultural or civilian targets which make collateral damage unacceptable. Systems in these instances could be attacked with UAV fired precision munitions or laser-guided or brilliant munitions. The employment of precision strike forces would be directed towards an enemy's centers of gravity along with the specific forces taking actions contrary to the interests of the US. Targeting of centers of gravity would have to be a measured

application depending on the results desired. Threatening a regime's existence could result in overreaction, but failure to do so might fail to cause withdrawal or other desired actions given this force's severely limited maneuver capabilities. The stand off weapons effects during Desert Storm were impressive, but failed to cause the Iraqi forces to withdraw.[108] Destruction of the offending forces would not require the same consideration of measured application necessary when dealing with regime existence.

The forces associated with this strategic approach would be substantially different from those of US allies. Operations with allies may or may not find the US in the leadership position, depending on alliance members' attitude towards the lack of a tangible US share of the hazards associated with combat. Coalitions may become vertical with the US providing space and air dominance, information dominance, and LRPS.[109] Allies would provide any surface maneuver forces that might be required. On the other hand, unilateral action may be more likely as forward basing dependence would become even less of a consideration.

While this force is a radical departure from present and anticipated operational and strategic concepts, at least when compared to Joint Vision 2010, the capabilities are possible in the next thirteen to eighteen years.[110] The limiting factor of the probability of casualties found in present day and Joint Vision 2010 forces would not be a significant consideration. Operational concepts would be radically different and would include information dominance sharing with potential foes, capability demonstrations and finally force and possible regime destruction.

Conclusion

This chapter has established forces that reflect the vision of their advocates, the impact of history, technology, the probable future strategic environment, and to a degree the judgment of the author. These forces provide one possible path to the future for each concept. These constructions provide viable, capable forces that can deploy and mass power in response to challenges to the nation. Which concept is most relevant in the future environment will be determined by assessing these forces' organizations and operational concepts for utility in the following chapter.

However, some initial conclusions can be reached. The EMA force has sufficient capability to meet generally the security challenges outlined in chapter 4 and the beginning of this chapter. The EMA naval capability is sufficient to counter Chinese and Indian naval forces. Neither nation will be capable of putting more than one carrier battle group to sea at any one time. The US Naval Force will have two active carrier battle groups, and the capacity to deploy between four and six on station in short order.

EMA Land Forces provide a credible ground capability to deter Chinese adventurism and Iranian actions, and provide a reassuring presence in the strategic regions of Europe and Asia. Using precision engagement and dominant maneuver concepts, a rapidly deployed, functionally aligned, and highly mobile force, though slightly reduced in size, can be decisive in land combat. In most cases, the objective will not be destruction of an opponents regime, but rather the ending of actions counter to US or allied interests. As World War I and II

demonstrated, destruction without engagement and rebuilding, something the US electorate and budget seems incapable of supporting, produces resentment and fans the flames of future war. That said, there are pitfalls to leaving regimes in place as seen in Korea and Iraq. Each challenge requires unique solutions, but occupation and reconstruction do not appear to be enthusiastically supported by the US public.

A focused global attack capability that can engage an enemy force immediately upon the commencement of hostilities offers the joint commander tremendous advantage, engaging an enemy even while forces are enroute. No longer will joint commanders have to wait for air and ground based forces to set up in theater before seeking to counter a belligerent's actions. The combination of Aerospace global attack capabilities and Naval Force strike assets--both air and arsenal ship--provide the enemy with a lethal environment from the start of the campaign. Likewise, the use of the Marine team will ensure precision strike effects that are both effective and efficient, particularly through their ability to fill in the blanks in a commander's battle space knowledge. SOF in general will do the same, but normally out of the immediate operational area, and in support of strategic targets and centers of gravity.

The RMA force can provide similar effects, but seemingly at lower costs in terms of US lives and political capital. Global attack capabilities truly realized in sensor-fused, satellite-linked and fully capitalized AEW could fully accomplish Luttwak's notion of war from afar. Arsenal ships and submarines, linked to satellite acquisition systems may provide deterrent capability against Chinese or Indian naval

hegemony. Demonstration of this capability up front will be essential to the initial credibility of this new naval system. What is unclear is the ability of this force to impose its will on an opponent in a manner that is both effective and tenable. The impact of airpower in the Gulf was significant, but it did not force Iraq to capitulate anymore than the fire bombing of Dresden forced German capitulation in World War II. While the capabilities of an RMA force are in no way as crude as the two examples cited above, the capabilities of this force look to produce similar outcomes.

On the face of it, both forces seem viable. Providing that Luttwak's assertion that LRPS is the more usable warform proves correct, then an RMA force or a similar capability should be the path that DoD should follow. However, more so than EMA advocates, RMA force proponents do not link the LRPS approach to a future environment, probable opponent capabilities, cultural makeup and interests or US strategic requirements. Without this important link and assessment, neither force can claim preeminence. The analysis to follow in the next chapter seeks to resolve this issue.

CHAPTER 7

FORCE UTILITY IN THE FUTURE ENVIRONMENT

> If there is one attitude more dangerous than to assume that a future war will be just like the last one, it is to imagine that it will be so utterly different that we can afford to ignore all the lessons of the last one.[1]
>
> Sir John Slessor, Air Power and Armies

Introduction

The two forces outlined in chapter 6 must meet the requirements of the nation and its interests beyond 2010 to be of any utility whatsoever. Capabilities that do not obviate the capabilities of potential challengers to the US are a waste of money and effort. It is this apparent failure that diminishes Joint Vision 2010; the vision describes concepts and capabilities, but does not link them to a strategy or set of potential challengers. The same can be said about those who advocate a precision strike based military. If these great capabilities fail to deter an opponent, or prove to be marginally applicable or even irrelevant to the type of warfare being waged, then they too are a waste of funding and effort. The purpose of this chapter is to examine this issue in order to determine which force design is more applicable to the future environment given the probable challenges and challengers to US interests.

To accomplish this examination, the threat must be defined, Likewise the criteria for evaluation must be defined. From these first two steps, the two forces can be evaluated against the opposite ends of the probable spectrum of conflict, a regional near-peer competitor and a non peer competitor operating in a low intensity or OOTW environment. Forces and equipment that are generally effective or have value in both conflict situations would provide full-spectrum utility and contribute significantly to full-spectrum dominance.[2] While it may be a Joint Vision 2010 concept, achieving full spectrum dominance is the goal of either the EMA or RMA force. An organization that is suited solely to one end of the spectrum, to the exclusion of the other end of the spectrum, or that is only marginally effective at the other end is a poor investment. It will quickly fail to provide deterrence and invite competition at the other end of the spectrum--perhaps the ultimate form of asymmetrical warfare. A force capable of decisive victory at either end and across the probable conflict spectrum in between is the wisest investment.

Threat Evaluation

Threat Categories

There are four general categories of military competitors discussed in the strategic literature. These categories are: the peer competitor, the regional competitor, a niche competitor, and a non peer competitor. There are generally accepted definitions linked to each of these categories, but there are also important nuances of difference depending on the author. Some categorize potential competitors by technology, some by strategy, some in combination.[3] For the purposes of

this study the series of descriptive definitions that follow include technology, strategy, and the other instruments of power. It is also important to note that while some nations may fall neatly within the bounds of a single category, none of them are mutually exclusive, particularly on the lower end of the scale of conflict.

Peer Competitor. A peer is a nation, or perhaps an alliance, with the economic, political, and military power to challenge the US globally, using armed forces as advanced but not necessarily the same as those of the US.[4] The USSR was considered a peer competitor, though its power was generally drawn from its military. The USSR's relative political and economic power was not on par with its military power. The Soviet political system in the 1950s and 1960s had an attraction for many nonaligned nations, but through the 1970s and into the 1980s, the Soviet brand of communism became bankrupt. Its military power, composed of an eventually unsustainable conventional military and its nuclear forces, gave the USSR its most visible claim to great power or superpower status. However, the USSR was never able to realistically challenge the US on the high seas, and its economic power was always suspect. This lengthy discussion of the USSR demonstrates how difficult, at this point in history, it is for a nation to achieve peer competitor status against the US. This difficulty should reinforce the proposition that a peer competitor rising up in the next fifteen to twenty years is highly unlikely.

Regional Competitor. A regional competitor, also referred to as a regional hegemon, is a nation that is hegemonic within a region and possesses sufficient power to realistically challenge the US, in

symmetrical and asymmetrical ways and perhaps deny US interests within its own region.[5] North Korea has been described as a regional competitor, with its large army and WMD capabilities. During World War II, Japan was a near-peer regional competitor that was truly hegemonic within the Asian region, and had the military and economic power to challenge the US in a head-to-head confrontation. Some might characterize Japan as a peer; however, Japan's influence was limited to the Pacific, whereas the US was active in both World War II theaters.

Niche Competitor. A niche competitor is a state or perhaps a nonstate actor that exploits one or more sources and instruments of power in a manner that is equal to or better than the capabilities of the US.[6] This capability in turn confounds US interests. This confounding of US interests may be for internal political gain or for discrediting the US within a region or state. This is the essence of the concept of asymmetrical warfare. North Vietnam is an excellent example of this type of competitor. The North Vietnamese exploited revolutionary warfare and had sufficient power in the political and information instruments to defeat the US, not on the battlefield, but certainly in terms of winning the war. Future practitioners of this form of warfare might be a country with superb counter-air force and counter-naval systems coupled with long-range WMD delivery systems that can prevent the US from effectively projecting forces into a region. The counter-air and counter-naval systems prevent both sea and air global attack systems from moving within striking distance, and the WMD capability would intimidate neighboring states sufficiently to prevent

the US from establishing a foothold in the region. Terrorism is another possible form of niche competition.

Non Peer Competitor. This category covers nations or nonstate actors that challenge US interests, but do not possess a capacity for conflict with the US. A guerrilla war waged against a government friendly to the US is one example, particularly if the guerrilla movement is sponsored by a regional competitor. Cuba is another example of a non peer competitor. Cuba has neither the military, political, or economic wherewithal to challenge the US, but does so anyway. In this case, the power of information--the romantic notions of Castro and the revolution and the hesitation of the US to want to regain the mantle of Yankee imperialist--as much as anything else, prevents the US from taking any direct action against the regime.

Likelihood of Conflict

The assessment of the future environment provided in chapters 4 and 5 suggests that a peer competitor is highly unlikely over the next fifteen years. Russia is in a slump it probably cannot recover from and time is insufficient for China to modernize its forces adequately to compete with the US globally. However, the possibility of regional near-peer to non peer competition appears likely. China demonstrates the best set of indications that it will become a regional near-peer competitor, with its growing wealth, recent history of being slighted, and expanding interests that often run counter to those of the US. Those interests which clash with those of the US include navigation of the South China Sea and associated choke points, a free Taiwan, a democratic and stable Korea, and access to oil. In the out years

towards 2020, China may transition to a near-peer competitor. Iran also demonstrates many of the traits expected of a regional competitor, and its present defense programs indicate a development of niche or asymmetrical capabilities. Iran challenges several US interests which include freedom of navigation throughout the Persian Gulf, access to oil from the region, and the stability and political viability of Iran's Gulf neighbors. It is unlikely that Iran will look to challenge the US in a direct symmetrical confrontation, but Iran does look to confound US interests in the Gulf region.

Other possible challengers include India, the possibility of regional instability or the disintegration of states important to the US. India may develop naval capabilities similar to US capabilities normally present in the Indian Ocean. Depending on China's actions, this navy may be more oriented on deterring and countering Chinese naval presence than on countering a US presence. Given the historical record, regional or state instability, particularly in terms of radical Islamic fundamentalism and the destabilization of friendly nations, is a difficult challenge for the US.

China is the most likely near-term regional or near-peer competitor the US will encounter. As stated in chapter 4, this challenge does not necessarily have to result in conflict, but caution is always warranted when dealing with the world's largest army. This is particularly true considering that they will very likely have seventy divisions, twenty of which are Desert Storm equivalents, a limited objective blue-water navy that can operate without concern for allies in the region, and regional power projection capabilities. With Japan and

Korea being so close to China the US does not have the luxury of operating without regard to allies in this region.

Iran is the most likely threat to be encountered and the challenge will be to discover how much the Iranians learned from observing the Gulf War. If they draw half as many lessons from this experience as Indian General V. K. Nair did in watching it on television, then port, airfield, and sea lines of communication security will be very difficult. The rising internal opposition to those Gulf governments friendly to the US is another possible form of niche warfare the US may have to contend with in regards to Iran.

India's naval potential is not so much a probable point of war but a note of caution that must be taken into account when developing capabilities for the US armed forces. A routine and credible presence of US naval power in the Indian Ocean, probably incorporated with Persian Gulf operations, could well be sufficient to mitigate any direct challenge from India.

Economic ties and the growing interrelationships of industries and Asian corporations may well mitigate a confrontation between China and the US. This only enhances the mitigating potential derived from the fact that China and the US both possess nuclear weapons. Iran, on the other hand, is not is this category on either economic count today and nuclear weapons are unlikely, but not impossible in the future.

There is a high probability of conflicting interests between the US and China and the US and Iran. These conflicts may or may not lead to armed confrontation. However, the likelihood of conflict suggests a need for sufficient military capability to deter armed confrontation and

compel these nations, and others, to adhere to internationally accepted standards of behavior and not take actions prejudicial to US interests. An assessment of the EMA and RMA forces to provide just that sort of capability follows.

Force Assessment

Warfighting is the most important capability the US armed forces can possess. The military can provide substantial capability in humanitarian actions, peacekeeping, and the like, but as the military instrument of a great power, fighting and winning wars must be an unquestioned capability. The application of the military instrument of power in war reflects the nation's commitment to the defense of a vital interest in the face of exhausted or untenable alternatives. There is little room for failure at that juncture. The strategy of the US has depended on this capability throughout history, and the service members who volunteer to do the nation's bidding deserve that this be the primary focus of the military. The focus outlined in Joint Vision 2010 and the current national security strategy supports this assertion as well.[7] For these reasons the EMA and RMA forces will be assessed for utility in the prosecution of war against the opposite ends of the probable spectrum of conflict--a near-peer regional competitor and a non peer competitor conducting insurgency warfare against a nation vital to US interests. Other OOTW operations, such as peacekeeping or even peace enforcement, will not be considered.

This section will provide an overview of how each force would operate in the future environment. Further, both forces will be assessed for effectiveness against deterrence, compellence, and decisive

victory in dealing with these two possible levels of conflict. This assessment of effectiveness will be made with consideration to the principles of war and the operational concepts described in Joint Vision 2010. The desired outcome is to determine which force type provides the nation with the better opportunity for full-spectrum dominance.

Assessment Criteria

The following provides a brief definition of the criteria used for assessing the two forces' utility. Deterrence is discouraging attack against the US and its allies through the maintenance of sufficient military power and an understood will to use that capability to defend US interests. Compellence is the ability of the US to cause other nations to conform to accepted behavior or take actions favorable to the US without force of arms, but backed up by the elements of deterrence. Decisive victory is the rapid termination of a conflict on terms favorable to the US, with minimum US casualties and a decreased likelihood of the transgressor emerging as a threat in the foreseeable future.

The Principles of War in the 2010 Environment

The principles of war universally accepted within the US military are defined in Joint Publication 3. Doctrine for Joint Operations.[8] In brief, those principles are defined as follows. Objective: The purpose of the objective is to direct every military operation toward a clearly defines, decisive, and attainable objective. Offensive: The purpose of the offensive is to seize retain, and exploit the initiative. Mass: The purpose of mass is to concentrate the effects of combat power at the place and time to achieve decisive results. Economy Of Force: The

purpose of economy of force is to allocate minimum essential combat power to secondary efforts. Maneuver: The purpose of maneuver is to place the enemy in a position of disadvantage through the flexible application of combat power. Unity Of Command: The purpose of unity of command is to ensure unity of effort under one responsible commander for every objective. Security: The purpose of security is to never permit the enemy to acquire unexpected advantage. Surprise: The purpose of surprise is to strike the enemy at a time or place or in a manner for which it is unprepared. Simplicity: The purpose of simplicity is to prepare clear, uncomplicated plans and concise orders to ensure thorough understanding.[9]

While these principles are accepted as the foundation for planning and executing operations, they were derived from nineteenth century strategic thought. Many of that period's strategic considerations, however would be best related to today's operational level of war. At the strategic level, war is a more intellectual pursuit, still requiring a framework of analysis, but not a checklist of time proven axioms.[10] Based on this thought process, members of the US Army War College's Strategic Studies Institute proposed the following principles, which are slightly different, oriented at the strategic level and focused on the twenty-first century. Objective: Identify and pursue clearly defined and attainable goals whose achievement best furthers the national interest(s). Initiative: Seize, retain, and exploit the initiative. Unity of Effort: For every objective coordinate all activities to achieve unity of effort. Focus: Concentrate the elements of national power at the place and time which best furthers pursuit of the primary

national objective. Economy of Effort: Allocate minimum essential resources to subordinate priorities. Orchestration: Orchestrate the application of resources at the times, places, and in ways which best further the accomplishment of the objective. Clarity: Prepare clear strategies that do not exceed the abilities of the organizations that will implement them. Surprise: Accrue disproportionate advantage through action for which an adversary is not prepared. Security: Minimize the vulnerability of strategic plans, activities, relationships, and systems to manipulation and interference by opponents.[11]

While the differences between these two sets of principles may appear cosmetic, the focus and scope is noticeably different in important ways. For example, the principle of the offensive is not part of the strategic lexicon, but initiative is. In the offensive definition, initiative is achieved through offensive action; initiative in the strategic context may be achieved through economic action or even deploying forces to conduct defensive operations. A case in point was the 1994 deployment of US forces to Kuwait to counter an Iraqi troop buildup. The mission was defensive; however the initiative was clearly with the defense in this case as Iraq could not continue to threaten Kuwait. One other point is the use of the word "resources" in defining "economy of effort" rather than "combat power" in defining "economy of force." Strategic level decision makers, except perhaps in the case of nuclear war, deal in allocation of resources and application of instruments of power. The application of combat power is an operational task. Both of these sets of principles are useful in the discussion of

the utility of EMA and RMA forces as these forces are described and applied at both the strategic and operational levels. Strategic considerations include deterrence and compellence, as well as global attack, information warfare, and presence. Operational considerations include dominant maneuver, precision engagement and strike, and decisive victory.

Force Utility in Dealings with a Regional Competitor

Regional peer conflict could occur against China on the ground, air, and sea. Conflict with Iran will focus predominantly on land to eliminate missile threats. A conflict with India would focus on countering a growing navy and a potential desire to control the Indian Ocean.

Conflict with China is the most dangerous and could begin with a Chinese invasion of Taiwan or Korea, or its imposition of hegemony over the South China Sea and the associated islands in the area. Any conflict over Taiwan would involve the US for three reasons: first existing law requires the US to aid Taiwan; second is the notion of protecting representative governments; and third is concern for US relations with other allies--particularly Japan. Conflict with Iran would center on freedom of access into the Persian Gulf or overt threats to its Gulf neighbors.

Evolutionary Force Interaction with a Regional Competitor

The EMA force provides a flexible force capable of immediate engagement and continuous engagement and operational dislocation of an enemy. This force, due to its composition, also provides an ability to

provide a gauged response to a potential challenge. The inherent flexibility of this force design allows for its operational concept, as outlined in chapter 6, to be modified to the situation given the specific competitor and its menu of military capabilities. For instance, global attack against China would necessarily be limited to the operational forces being used to achieve that nation's immediate goals. To realize COL Warden's concept of attacking the inner ring[12] or the political center of gravity would threaten the very survival of the regime. China has nuclear weapons capable of reaching the US; a threat to its existence would probably elicit a nuclear strike by China. The threat of this reaction is something the US is unlikely to accept, except if the physical (as opposed to economic) security of the nation were called into question. Having said that, global attack would be a viable part of operations, only the targets would be carefully selected.

The evolutionary force, with its tangible presence and capability to rapidly increase that presence may prove to be a more decisive and reasonable deterrent, except over an issue of national sovereignty or economic viability. In that regard, should Taiwan declare independence or should China find it necessary to secure the South China sea to exploit the oil reserves there to continue its economic growth, or a viable, reunified and democratic Korea, China may take action.

An EMA Force in Deterrence

Given the changing strategic situation, the EMA force still presents a robust deterrent capability. With no more than three aircraft carriers, China's power projection capacity is limited. The US can expand from two to between four and six carriers and accompanying

ships within twenty to thirty days to counter this threat. This provides upwards of three-hundred and sixty combat aircraft plus those of a regionally deployed AEW. Given US training standards and weapons, this force could effectively challenge even a newly equipped Chinese air force of SU27s.[13] US submarine forces have the capacity to deal with the limited subsurface threat that China is likely to possess, and arsenal Tridents have the capacity to engage Chinese shipping and coastal bases necessary for launching and sustaining any power projection operation. Continued US presence in a reunified Korea, though perhaps objectionable to the Chinese, will also serve to demonstrate the commitment and resolve of the US to this region of rising economic potential for the entire world. Power projection capabilities to put two more divisions into the region within weeks also adds to the notion of commitment and capability. Because land operations against any Chinese incursion would be focused on achieving operational dislocation of the specific forces moving against Taiwan or Korea, this sort of US power projection capability should be sufficient to support deterrence. This calculus is made by assuming a qualitative edge of almost two to one on the part of an EMA force organization that possesses the capabilities to achieve information dominance. Without information dominance--not one-hundred percent solutions, but close--this is not possible against the Chinese. Additionally, no force postulated in this thesis is capable of conducting sustained operations on the Chinese mainland or against Chinese strategic centers of gravity. The country is too large and twenty Desert Storm equivalent divisions backed up by even half of the remaining fifty divisions would require

more than this or any other predicted US force could handle.[14] However, the objective is not the destruction of China, rather the deterrence of China or dislocation of operational forces.

Consistent responses to any move by the Chinese would demonstrate national will and reassure regional allies and trading partners. As demonstrated in chapter 4, China is focused on economic growth and prosperity. The Chinese, given a reasonable understanding of US objectives in the region, understand that US presence minimizes the potential for an arms race with Japan, and that a resolute US presence would preclude an easy conquest of Taiwan. Anything less than an easy victory in Taiwan would have serious repercussions for the Pacific rim economy, including China. Maximizing the risk for the Chinese leads to the conclusion that the Chinese would be less likely to attempt an invasion of Taiwan, even with improved naval and power projection capabilities. The same can be said for Korea as long as US troops are in the area.

Iran provides a different set of considerations with regard to deterrence. Iran's pursuit of asymmetrical capabilities and failure to link into the world economic system, or that of the Gulf for that matter, makes the possible economic repercussions of war with the US and its allies less of a deterrent. However, given information dominance and reasonably clear intelligence on its WMD sites, Iran could be put on notice through sharing of a portion of that information dominance picture with them. This exploits the global attack system and demonstrates the potential for removing significant portions of Iran's asymmetrical capabilities. Further, attacking the inner political and

economic centers of gravity, after removing significant portions of its WMD delivery capacity would be viable. In conjunction with this spelling out of the US information and global attack capabilities, Iran's primary oil fields are within striking distance by land forces from the Gulf coastal area. This action would remove one of Iran's major sources of income. The demonstrated capability to attack its regime and WMD capability, coupled with a real threat against its major source of national income should provide even a nation like Iran with the motivation to remain a reasonable neighbor. This does not mean that efforts to destabilize GCC states will cease, but it should mean that Iranian efforts to close the Straits or directly threaten GCC states would remain only a potential and not an eventuality.

An EMA force capable of deterring the likes of China and Iran should be sufficient for other potential threats. There have been few instances where nations have gone to war simply because a great power was already engaged in another conflict. Nations initiate wars in their own interests, not necessarily in support of another nation's wants and desires. North Korea did not launch while the US was engaged with Iraq, nor did Russia attempt to take advantage of US involvement in Vietnam by attacking Europe. Thus Russia, beyond action in some limited portions of the near abroad, will probably remain peaceful, particularly towards the US and recognize their inability to challenge the US in Europe. A CVBG presence in and around the Arabian Sea should be sufficient for general deterrence of any potential Indian initiatives.

In both probable scenarios, though taking a slightly different approaches, the EMA force provides a sufficiently robust mix of LRPS,

global attack, and conventional forces, both CONUS based and in theater, to provide reasonable deterrence to a China or an Iran. This is particularly true if allies in the region remain supportive to a US presence. Accepting that this force should provide reasonable deterrence against these two probable competitors, the chance of war is still very real. However, before examining the potential of the EMA force to achieve decisive victory, the potential for supporting compellence will be addressed.

An EMA Force in Support of Compellence

Compellence is an inherently diplomatic effort backed by the various instruments of national power. A strong deterrent capability coupled with significant economic, informational, and diplomatic power and credibility provides the means for compelling another nation to adhere to accepted norms of international behavior or even take certain actions beneficial to the US. This is not to say that a regional power could be compelled to take actions contrary to their own core vital interests, but that agreements could very likely conform to the desired US outcome.

In the case of China and Iran, there is some question as to whether this is possible. As discussed in chapter 4, nations with strategic resources but isolated and without a freemarket system and representative government can become rogue states. Iran clearly fits this description. Barring unforeseen developments, the ability of the US to compel Iran may be limited, However, even radical, anti-west regimes require basic trade ties and through a combination of deterrence, information campaigns, and economic restrictions, Iran may

be kept within the general bounds of acceptable behavior. Compelling China will also be difficult given its market's rising importance to the world economy. It is also doubtful for example that an embargo would be sufficiently supported worldwide to have an impact. However, as its economy grows and its population becomes accustomed to an increasing standard of living and as well as being more educated to support the evolving economy, China's ability to control information will wane. This development, when combined with a viable deterrent, should result in a reasonable potential for compellence on certain key issues such as refraining from adventurism outside of its borders, destabilization of a Korea, and the like.

The Evolutionary Force and Decisive Victory

While deterrence and compellence are important to the prosperity of the US and the advancement of its interests, decisive victory can be essential to the survival of the nation as the US now understands it. The rapid termination of a conflict on terms favorable to the US is the goal of decisive victory. Decisive victory is also the outcome US civilian leaders and citizens have come to expect.

This expectation or condition is different depending on the adversary. Returning to the two most probable competitors, in the case of China decisive victory would necessarily be limited to the operational dislocation of the forces directly involved in prosecution of the act of confrontation. China's size, population, possession of nuclear weapons, and increasing economic power precludes the taking of action that would threaten the existence of China's government. The same is not true with regard to Iran. Iran's continued diplomatic,

political, and economic isolation suggests that any conflict could be prosecuted with the goal of eliminating the regime. In contrast to the Desert Storm Coalition's cultural and political reluctance to dismantle Iraq, there are few friends of Iran capable of wielding sufficient influence to provide the same constraints on operations against Iran. Given sufficient provocation, the US could prosecute a full global strike, precision engagement, and dominant maneuver operation aimed at Iran's strategic and economic centers of gravity with the stated purpose of destroying the present regime.

Operations against China would have to be very carefully conceived to act only against the offending forces. The balanced combination of forces and options provided by the EMA force yields a unique capability that can strike at a variety of operational centers of gravity. Naval forces can cut sea lines of communication, aerospace forces can reduce key facilities and attrit large force concentrations, and landpower can isolate key areas and forces from their bases of support and drive them from essential objectives necessary to victory on the part of China. In a Taiwan scenario, global strike could begin attritting naval forces using space-based sensor links to CONUS and sea-based LRPS systems including conventional intercontinental ballistic missiles (CICBMs), arsenal ships, and long-range, tanker supported bombers with ALCMs. An approaching naval force of at least two and probably four CVBGs could establish air superiority over Taiwan and cut the sea lines of communication without using forces based in Japan. Land forces deploying from CONUS to Guam and the west coast to link up with MPS and the reserve carriers would provide two heavy divisions and one air

assault division capable of landing over the shore to force the retirement of Chinese forces on Taiwan. Marine elements support this dominant maneuver operation by directing precision fires against opposing forces and securing critical locations until land forces can break out with the support of airpower (see figure 8 for a graphic representation). While necessarily limited in strategic context, the limitations within the scope of the operational area would be minimal. Additionally, any attack on US space systems would be overcome by use of ship launched short duration satellites and UAVs.

In the case of Iran, assuming a closure of the Straits of Hormuz and a threatening of GCC states with medium range cruise missiles and WMDs, global attack assets would immediately attack WMD production and launch assets. Marine elements would deploy into likely coastal launch locations, and SOF would work on deeper targets. Arsenal ships and long-range bombers would provide the fires to support this phase. In conjunction with this operation, three divisions would be enroute to the area in days, presenting a force package similar to the one previously described within a matter of weeks. Probable mobility of some Iranian systems, particularly in the area of the Straits would require ground maneuver to force their retirement. As the deployment force matures, regionally based LRPS and aerospace power could begin to target political centers of gravity. As Iranian ground forces moved to counter US land forces in the Straits area, an Iranian decisive point, these forces could be cut off by precision engagement of maneuver forces deployed behind or astride their lines of communication. Initial deployments would come off ships several hundred miles off shore, and

under the coverage of the cooperative engagement anti-missile umbrella. This obviates the missile threat and challenges the submarine threat. The inability to predict where ground forces will arrive, given their ability to land without port facilities, would cause any opposition force to spread itself too thin in trying to anticipate the US action. The lighter, more efficient armored systems used by the heavy force would be capable of operating at three to four times the radius of current systems, reducing the logistics tail. Concurrent to these maneuver operations, Marine operations would focus on attacking the coastal oil fields to further challenge the Iranian regime. These attacks would focus not on destruction but neutralization of this crucial economic asset. Under attack throughout the depth and breadth of their geographic and strategic environment, the Iranian regime would find itself faced with the choice of submitting or being destroyed. The rapid and selective employment of power across the entire country, focusing precisely on key infrastructure, the leadership, and forces would destroy the regime without destroying the people.

Revolutionary Force Interaction with a Regional Competitor

In comparison to the EMA force, the operational concepts of an RMA force would be very difficult to modify. Accepting Luttwak's thesis, this force may be more readily committed, but it may not be as flexibly employed as the EMA force. The theory of gradual escalation was left on the ash heap of Vietnam and despite tremendous doses of aerial attack, precision and otherwise, the Iraqi Army did not quit the field of battle until the Coalition ground force forced the issue. What this means is that destruction of a force is the inevitable outcome of any employment

of a precision strike based RMA force. In some cases it may be sufficient to attrit forces in an operational area. However, should these forces become intermixed with civilians, it is highly doubtful that precision strike will be precise enough not to result in high levels of collateral damage. This point is essential; historical trends demonstrate that fires have yet to compel a force to quit the battlefield, therefore destruction is the only option. Further, when dealing with a nation such as China or Iran, where life has a different cultural and political value, an attack against the regime itself may be necessary to end a conflict. In the case of China, that is unrealistic due to China's nuclear weapons capability. This limitation is not so apparent with a nation like Iran, due to its pariah status and lack of strategic weapons. However, even in Iran's case destruction of the regime by stand-off weapons requires careful thought. While unable to target the US, failure to destroy WMD launch abilities as a part of an RMA attack could allow Iran or a similar adversary to attack a US ally.

The revolutionary force, with its limited presence and inability to rapidly increase that presence may prove to be an unrealistic deterrent due to the limitations of absolute power. Indeed, this capability could be likened to Morgenthau's distinction between usable and unusable power where "an increase in military power is no longer necessarily conducive to an increase in political power."[15] Additionally, a moral and political issue arises when dealing with conflict from afar. The moral high ground once occupied by the US may be abdicated to the adversary. With a substantially decreased chance of casualties, the US could be seen as a bully wreaking havoc on another

country without any chance of suffering any losses of its own.[16] The reaction of the Middle Eastern region to the cruise missile strikes against Iraq during the fall of 1996 is a case in point. Support among allies in the region was negligible, and many were vocal in their opposition. The moral standard the US lays claim to could quickly disappear with a multitude of such operations.

An RMA Force in Deterrence

The RMA force operational concept is based on information dominance tied to the shooting platforms. This capability, as it appears to be developing, will be supremely powerful, and for massed forces and the critical areas of a government's legitimacy, the outcome could easily be one of destruction. However, the utility of such an exclusive capability remains to be seen. The fire bombing of Dresden did not break the spirit of the German people and neither did similar attacks against Tokyo. The record of effectiveness of escalation during Vietnam is mixed, though the immediate results were certainly inconclusive given the eventual victory of the North over the South. Nuclear weapons have provided stability in the realm of great power confrontation over the last forty years, but they have not proven to be decisive. The future legacy of a precision strike force may be the same.

Even with the sharing of information dominance products and the almost assured destruction of a foe given the capabilities of the RMA force, deterrence may not always be achieved. Nuclear weapons precluded head-to-head great power war, but it did not preclude warlike competition. This capability, which cannot be applied in an escalating

manner with any lasting effect, can only be employed with the intention of destruction of a regime. As previously discussed, China's possession of nuclear weapons obviates any threat the RMA force may pose to the Chinese regime. The sanctity of human life is too high in the US to risk the lives of its citizens in a confrontation with a state like China that can target the US. Additionally, given China's size--population, military, and economy--coupled with the fact that it is still developing an infrastructure, it may be able to absorb more punishment than the US could absorb or would be willing to deliver.

In the case of Iran the threat of destruction may be sufficient to deter it from taking action against US interests or its allies. However, it may not be sufficient. If Iran does station forces on the Straits of Hormuz and declare the region closed to US commerce, or some similar action, the question returns to what reaction will be acceptable to world opinion. The US did not attack aircraft and missile launchers placed near schools, in residential areas, and near historic landmarks during the Gulf War. It is unlikely that this policy will change. If that is true, then Iran can maintain a viable WMD threat against its neighbors, and allies of the US, as a hedge against attack from the US. The inability to place decisive force on the ground in conjunction with air and sea attack may prove to be decisive to an adversary. The other limitation in this may prove to be a moral one. If regional allies and trading partners react to a decisive precision strike by an RMA force in a manner similar to the Arab reaction to the attack on Iraq, US leadership and credibility may come into question.

In both probable scenarios the ability of an RMA force to destroy is unquestioned, the issue is to what end does this force cause destruction. In the case of China, nuclear weapons may preclude the use of this precision strike capability all together.[17] In the case of Iran, the bully factor in this age of instantaneous new coverage may prove detrimental to the US position in the world.

An RMA Force in Support of Compellence

As with the EMA force, compellence is still an inherently diplomatic effort backed by the various instruments of national power, including military power. The previous conclusions as to the significant limitations of precision strike forces answers the question of compellence. Saddled with an unusable military instrument, the other instruments of power become more important. If precision strike had been previously employed, and US prestige was reduced as a result, then the nation's ability to compel others is diminished as well.

The Revolutionary Force and Decisive Victory

The capability to conduct RMA operations is viable and the large reduction in manpower would provide funds for additional space and LRPS air and sea launch platforms. The sensor-to-shooter architecture could be established, and the ability to strike with global attack air and sea systems against any target on the face of the earth could probably be realized. On the face of it, this concept of operations should be decisive. However, the ability to achieve decisive victory with an RMA force may be limited by the same factors discussed in the section on RMA deterrence. As stated earlier, the question is not whether the

capability can be realized, but whether it can achieve its purpose. The goal of rapid conflict termination may be achievable by the RMA force, but most likely through the destruction of the adversary's regime. When faced with this prospect, another nation will look at this issue as a question of survival. When fighting for survival, the means of war quickly become far more violent and destructive. The linkage between an RMA attack and China and its nuclear weapons has already been discussed. The chance that the Iranian regime might lash out with WMDs against a US ally is also a very real possibility when it is faced with the violent end of its existence. Time and treasure may be efficiently expended using this capability, but the repercussions may be unmanageable.

Operations against China could not be limited to the operational forces conducting the incursion. Without a balanced combination of forces and options provided by the EMA force, the US can only attack to destroy the regime as well as the various operational centers of gravity. Naval forces would cut sea lines of communication by fires, aerospace forces would reduce key facilities and attrit large force concentrations and use LRPS to target the regime itself. Too small in terms of numbers for maneuver operations, landpower could only stand by to secure ground based LRPS and aerospace basing as it came available. In a Taiwan scenario, global strike could begin attritting naval forces using space based sensor links to CONUS and sea based LRPS systems including CICBMs, arsenal ships, and tanker supported bombers with air launched cruise missiles (ALCM). However, if this attrition action fails to force a withdrawal, continued pursuit of PLA forces could end in Taiwan's destruction. Further, should China decline to withdraw,

then the regime itself would have to be targeted. When the level of force graduates to this point, China would be fighting for its survival and the use of nuclear weapons would become a real possibility.

Operations against Iran would follow a similar path. The consequences here are not so much a threat to the US as it is possible WMD attacks against allies, and a corresponding loss of US prestige as it methodically goes about destroying Iran without suffering any possible consequences. Even if Iran capitulated, the US would be unable to impose its will on the government due to the limited ground forces available. This could place the US in position similar to the aftermath of the Gulf war, where the victor finds a hollow victory. In the case of Iraq, the decision to leave the regime intact was a conscious one, which could have been easily reversed with the ground forces in the theater. The same would not be true for a regime that quit prior to destruction by an RMA force. Given the limited ground forces available, the regime could almost claim victory, or at least victim status and still continue to exist.

The reliance on technology and missile type systems would also allow potential adversaries to plan against only one kind of attack. This could focus the effort on innovation to a point where sensor and brilliant weapons countermeasures might develop more rapidly, thus detracting from the effectiveness of the RMA force. The difference is the lack of a balanced force capable of full spectrum dominance. This force when operating against a regional power provides only single or dual spectrum dominance.

Operations Other Than War

Operations other than war, currently a growing part of the operational landscape, provides particular challenges for both force designs as they are built around information dominance. Depending on the physical environment and the lack of mass formations to target either for dominant maneuver or precision strike, neither force may be particularly useful. However, as Bosnia has demonstrated, for reasons that are beyond the scope of analysis of this chapter, land forces and air forces can make a difference in an operation other than war. Airpower, in conjunction with the Croatian offensive broke the Serb Army and brought them to the negotiating table. The presence of several heavy brigades has assisted in maintaining a tenuous peace.

Bosnia also demonstrated the limitations of information based systems and precision strike in the futile effort to find and destroy mortars, artillery, and mobile guns in the mountains surrounding Sarajevo. Airpower contributed decisively, as could precision strike, against Serb Army formations and installations, but not against systems and positions hidden deep in the forests of Bosnia.

Should the US find itself engaged in a conflict in a region such as Bosnia, ground forces will be needed to locate and target systems in the trees. The EMA land force organization contains sufficient forces of both light and heavy varieties to support such operations. The RMA force does not. This limitation in capability is important, because while winning wars is the essential reason for having a military, these other missions become essential to US credibility and maintenance of alliances. US participation in Bosnia, as an example, was essential to

demonstrating US leadership within the NATO structure. Failure to participate could have brought the viability of NATO into question and that would not have been in the interests of the US.

In supporting a friendly government engaged in a counterinsurgency, the SOF components of both forces would be best suited to prosecute that campaign. As Vietnam demonstrated clearly, conventional US troop formations are a poor tool in conducting counterinsurgency operations. As the Marine experience in the 1920s and 1930s shows, and the more recent experience in El Salvador reinforces, small US missions that assist the host government in conducting a national counterinsurgency war are more likely to succeed than an outside intervention. Using this as a model for future counterinsurgency operations, then either the EMA or RMA force could conduct the operation successfully using its SOF component.

In order to conduct OOTW operations similar to Bosnia or conduct relief operations within CONUS, the nation requires landpower. While training and focus should always be placed on fighting and winning wars, the nation has interests and commitments that do not always require destructive elements to support them. In these environments, landpower is essential to conducting the operations. The RMA force cannot be funded if an eight division land force is maintained, and the LRPS capability is of little value in these operations. The RMA force specified in this thesis has a paucity of landpower for the conduct of OOTW missions if any long term presence or wartime response capability is to be maintained. It seems clear that the EMA force provides more flexibility in this very difficult and varied mission environment.

Conclusion

The strategy based EMA force provides the requisite balance between technology and manpower, and fire and maneuver. This balanced, functionally based force is sized to meet the probable strategic requirements of the twenty-first century. Contrary to the assertions of Edward Luttwak, Richard Perle, and others cited throughout this thesis, the RMA force, while sufficiently powerful to realize its operational concept and prevail against an opponent, is not the more strategically and operationally useful force. While both forces will always have limitations, the analysis of this chapter certainly suggests that the repackaged assertions of Douhet and Mitchell are still not valid. What is valid, however, is the realization that fires and maneuver are a key and symbiotic relationship that cannot be allowed to fall out of balance or stalemate will follow. Additionally, the contributions of land-, aerospace-, and seapower to national security are unquestioned when packaged in a balanced, thoughtful manner. Aerospace power provides the reach, simultaneity, and depth of continuous attack, seapower projects force and forces in conjunction with land and aerospace power, and landpower allows the nation to impose its will on others--with the support of the other arms. War will change, but the requirement for all services to act in a symbiotic relationship will not.

Chapter 8

CONCLUSIONS AND RECOMMENDATIONS

> You may fly over a land forever; you may bomb it, atomize it, pulverize it and wipe it clean of life--but if you desire to defend it, protect it, and keep it for civilization, you must do this on the ground, the way the Roman legions did, by putting your young men into the mud.[1]
>
> T. R. Fehrenbach, This Kind of War

Conclusion

The quote above seems to suggest that only landpower is decisive in war, but in the greater context of the Korean War, to which it speaks, the importance of all the services capabilities cannot be overstated. The soldier in the "mud" could not get there without air- and sealift, nor could he survive without airpower and seapower. This quote also speaks to one of a list of tragic experiences in US military history--Task Force Smith--where the US got it wrong and soldiers died needlessly. The nation's leaders did not assess the future correctly, embraced "easy" solutions like the supposed preeminence of the atomic bomb and ignored the experience of history. The purpose of this paper is to help get it right and prevent the present generation of soldiers and the next from having a similar experience.

This thesis sought to determine the best strategic and operational approach for the US to maintain continued military dominance. The path currently undertaken by the Department of Defense is embodied in Joint

Vision 2010 and its companion service visions, and its antithesis is embodied in the prescriptions of defense theorists such as Richard Perle, Edward Luttwak, the Friedmans, and others. Based on the future forecasted in chapters 4 and 5 and the analysis of these two approaches to military dominance in chapters 6 and 7 several things are clear. First, the forces that are currently envisioned for Joint Vision 2010 are inadequate. Joint Vision 2010 is not the best path to continued dominance. The structure of Force XXI, the pursuit of systems such as the F22, the retention and protection of service prerogatives, the resistance to real change could well be the undoing of the emerging twenty-first century US Armed Forces. Second, it is absolutely clear that standoff warfare and long-range precision strike are not silver bullets capable of providing usable and affordable military power. This presentation of a military capability as a strategy is based on a false hope unfounded in military history and realistic strategic thought. Finally, the US military must change, from the top down in order to effectively and efficiently exploit the strategic opportunity the near term future provides for the military to exploit the potential of the information age. It is unimportant whether the information age provides a revolution in military affairs. As discussed in chapter 1 it may be that the pace of change dictates an evolutionary approach that results in revolutionary capabilities. What is important is that the military and national leadership first recognize the need for change (perhaps radical) and second embrace the opportunity the current and near term strategic environment provides to realize genuine and meaningful change. Failure to take advantage of this opportunity may result in a loss of

strategic dominance and corresponding irrelevance not unlike the French experience at the beginning of World War II.

Of particular importance is this resistance to change. The roles and functions of the armed services should change to increase effectiveness and efficiency. The changes outlined in chapter 6 provide a start point, not necessarily the perfect solution or end state, but certainly a point for honest assessment and analysis within DoD and each of the services. Tradition is important, but relevance and unassailable dominance are achieved through executing warfare in ways that others cannot replicate. The best global strike and aerospace dominance capability cannot necessarily be achieved if the Air Force is also concerned with close air support and global mobility--despite the fact that at this point TRANSCOM controls the Air Force's assets. Similarly, the Army cannot provide the most decisive landpower capability to rapidly deploy and decisively maneuver to dominate the enemy when a significant proportion of the force is in the tail of the lion rather than the teeth, and close air support is not controlled or provided by the ground component commander. Likewise notions of command of the sea have been overcome by the advent of satellites, long-range strike capabilities and the disappearance of any apparent blue-water threat. Having addressed these issues, and others, in a rational and detached manner, the probable resistance to any of the changes described above or in chapter 6 is daunting.

The record of history is on the side that embraces change, rebuilds or creates new organizations, develops new doctrine and then integrates the best of the emerging technologies. More, better, faster

will not position the US military for success in the twenty-first century, but different, innovative, and better will. While budgetary realities and procurement cycles dictate radical technological change in the out years, these factors do not dictate organizational and doctrinal change. Failure to evolve now may result in organizational dislocation later. Leadership and vision are required to move forward.

Inferences and Outcomes from Chapters 4-7

There are several important areas that fall out from the conduct of this study. They deal with the future environment, the importance of strategy, the dominance of organizations and doctrine over technology, the validity of the Joint Vision 2010 operational concepts, the relationship between fire and maneuver, and that strategic dominance is maintained through fundamental change, not organizational effectiveness.

The future forecasts developed by the National Defense University and the Army War College seem to get it about right. Based on amalgamating these documents with several civilian commercial and academic works, and some original material, the conclusions arrived at in this thesis support the predominant themes found in these government publications. Based on the variety of sources used, this would appear to bode well for the world in general and the US specifically. However, caution or a healthy skepticism must always be applied when looking to the future as history is replete with examples of events proving the conventional wisdom wrong.

The purpose of a military strategy and its accompanying forces is to support the US national security strategy by protecting US vital

interests. A national strategy is essential to determination of force design. The current headlines attest to this as does the analysis presented in chapters 4 and 5. A military force exists to support strategy. To do otherwise is to stand the process on its head. Force capabilities and structure must be directly linked to the *ends* of a national strategy. Without this guidepost, the military develops without purpose and direction, particularly in a nation like the US where the civilian leadership sets the course for the nation and its military. Joint Vision 2010 reflects this transposition of process. Until a national direction is set for 2010 and beyond, defense visions are only intellectual exercises with little basis in reality.

While the emerging force structure associated with Joint Vision 2010 is inadequate for the future, the operational concepts of dominant maneuver, precision engagement, full dimensional protection and focused logistics are valid and have great promise. A functionally organized force that effectively executes, but is not dependent on these concepts will be unassailable. The only note of caution must be directed at relying on information superiority as a requirement for operations, or assuming successful force projection operations. No strategy can assume that countermeasures will not exist or that nations will not find weaknesses and exploit them. Indian General V. K. Nair outlines this point succinctly in War in the Gulf.

The symbiotic relationship of mutually reinforcing fires and maneuver is essential to preventing stalemate. The Civil War and World War I provide the most vivid examples of stalemate being precipitated by the dominance of fires. In the Civil War the Battle of the Wilderness

provided the lesson of mass maneuver, despite the horrific casualties, could overcome the previous dominance of the rifled musket. Likewise in World War I artillery and the machine gun ground the war into years of stalemate. Only in the closing months, as both sides approached exhaustion, did the rudiments of mobile warfare break the stalemate. The often repeated example of the Maginot Line being overcome by the Blitzkrieg also demonstrates the importance of maneuver. The key for the future is not to allow the defense and stalemate to become the dominant form of warfare. This will result in obsolescence of the US force projection military as this strategic requirement is inherently offensive in nature. Organizations and equipment must be changed to allow for truly decisive deployment and dominant maneuver.

Strategic dominance comes from fundamental change, not change at the edges or only at the operational level and below. The business model described throughout this thesis provides insight into the future. The Germans perfected maneuver warfare and remained dominant in Europe until the Russians and the western front Allies could match that capability. On top of that matching of organizations and doctrine, the US brought another factor to bear--industrial mobilization--which Germany could not replicate. The world has seen airland battle doctrine and views it with envy and intellect. The intellect will either copy it effectively, as it appears is China's goal, or figure out how to counter it as outlined in Nair's book. This is the reason for change, to stay ahead of the competition, not just to integrate new technology.[2]

Recommended Areas for Future Study

While this study attempted to be as comprehensive as possible, a number of issues developed that require further study. Some are strategic questions, some are technical and others are operational. In order for the overall question of which is the best path to the future military to be answered, these issues should be addressed.

A National Vision 2010

As discussed in several places, perhaps to the point of redundancy, the first step in developing a viable defense strategy and a corresponding strategic approach to force design is articulation of a national security strategy. This document does not exist, though several come close, including Foreign Policy into the 21st Century from the Center for Strategic and International Studies. While it is a fine piece of work, it does not have the approval of the elected leadership of the US. A commission, an interagency working group, or a think tank must produce a document, commissioned by and embraced by the senior elected leadership. Only once a document such as this is published can there be a truly productive debate on force structure and missions.

Task Based Modernization Tiers

Given flat defense appropriations continuing for the foreseeable future, an approach to modernization might be to develop exploitation forces that are rapidly deployable and capable of tremendous mobility. There are two models for this approach. One is to have such forces comprise only a part of the overall force. This was the German approach to the Blitzkrieg, where the armored maneuver forces actually made up a

small portion of the overall force. This blitzkrieg force made the penetrations and exploited success while the less capable regular forces conducted follow and support and more conventional attack missions. A second approach is to use technological superiority to clear a path for the follow on forces to follow. This is the one currently employed by the USAF where high technology systems such as the F117 precede less capable aircraft. The benefits to this approach may be a more capable force sooner for less money, as well as providing a model for transition of the rest of the force as funding becomes available.

A Transition Strategy from Joint Vision 2010 to the Force After Next

While there are activities studying what the forces after next should look like, they are almost all service based. This approach runs counter to the holistic approach advocated in this thesis. A joint coordination effort and study should be commissioned to look at integrating these efforts so that the force after next arrives as a truly joint vision.

Changes to the Unified Command Plan

The information age appears to be creating a seemingly smaller world. One of the unfortunate outcomes of the rise in jointness in the US military is a proliferation of new headquarters and layers of bureaucracy. The US force structure is shrinking, but the joint headquarters structure is not. The Unified Command Plan should be reviewed and changes made to streamline this growing bureaucratic assembly.

Outcome Importance

> To make war without a thorough knowledge of the history of war is on par with casualness of a doctor who prescribes medicine without taking the trouble to study the history of the case he is treating.[3]
>
> Sir Basil Liddell Hart, Thoughts on War

Changing an organization, rather than creating one, is a difficult proposition. The mores and inertia of the present structure often resist and slow change to a point where it often fades away. The conclusions realized from the examination of the military ramifications of the changing strategic environment and emerging RMA imply that the service's implementation of Joint Vision 2010 is invalid. This thesis lays out a path for strategic dominance unlike the parochial, conventional approaches outlined by the services. Similarly, this thesis discredits the myth, primarily resurrected by Richard Perle and Edward Luttwak, that somehow sterile warfare is achievable or useful. The record of history and the theories of the likes of Hans Morgenthau stand in opposition to this approach of war from afar. With these outcomes, a direction can be set for the future, one that is tied to and protects the nation's interests against the most probable threats.

However, the assessment and definition of the nation's interests are without true value until the political leadership focuses on the future and articulates a strategic vision for 2010 and beyond. Without this direction, any force derived to fulfill the valid Joint Vision 2010 operational concepts will only be a reasonable guess. In an era of defense growth, a best guess may have been acceptable. In the current

era of defense stagnation, a best guess may well be a waste of precious resources, causing the expenditure of unnecessary funds on security at the expense of productive investment, or vice versa.

While strategy is critical to the force design process, warfare requires a holistic application of functional capabilities. The analysis provided here demonstrates that no one service is the keeper of future warfare. The notion that precision strike and aerospace power by themselves are the most useful tools for the national leadership is simply a mistake. These capabilities are more limiting than either seapower or landpower, neither of which can exist without aerospace power.

The importance of this conclusion is that a balanced force will best serve the nation's needs, but that force must first be based on a strategic vision, focus on organizational and doctrinal change first and technology second, and that organizational change must permeate DoD, not just brigades, wings, divisions, and CVBGs. Modular, functionally aligned forces in new organizations that can be rapidly deployed and effectively employed, exploiting information age technology and executing the function of war differently than the competition will be the key to victory in the future.

Conclusions and Thesis Contribution to the Body of Knowledge

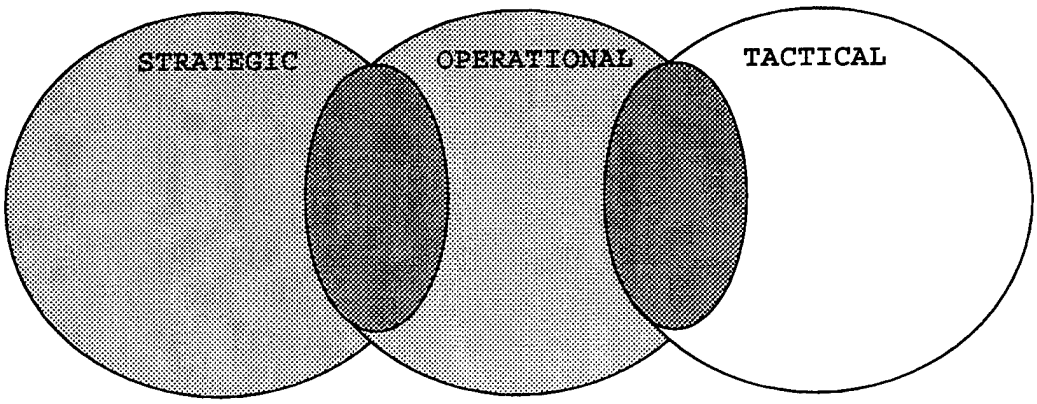
This thesis has developed a strategy based force that presents one path to maintaining continued strategic dominance. The first contribution to the body of knowledge is this approach, which appears to be muddled within the context of the current QDR and NDP processes. The

EMA force is actually a radical departure from the present visions and modernization plans of the US Armed Forces. This is for the simple fact that organizational change is essential, and Joint Vision 2010 did not articulate enough of it. Having said that, the more important conclusion is the a balanced force is still necessary for deterrence and the successful conduct of war. The two forces compared in the future environment were specific enough to allow visualization of organizations so that others have reasonable departure point for alternative force designs. The other significant outcome that must be grasped is the futility of searching for a silver bullet--war is a mean nasty business that requires multiple tools. Precision strike is a capability to be melded into the joint force, not a means unto itself. The bottom line is that future discussions of force design and capability should be first based on a strategy and second include all of the services capabilities--there is no decisive force except the joint force.

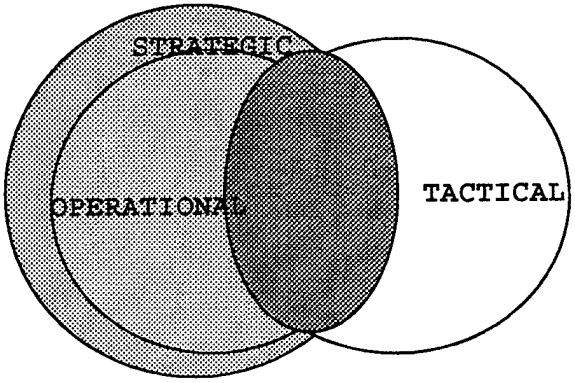
Final Word

The key to maintaining unassailable strategic dominance is organizational, doctrinal, and technological change. This change should not be around the edges, but at the core of the institution. There may be other books like Breaking the Phalanx that address the Air Force, the Navy and the Department of Defense, but they are not prolific. This study has attempted to address that sort of organizational change in a broad manner that identifies issues and provides some suggestions. There is neither the space nor the time to give any of them the attention they deserve. Besides this crying need to develop specific

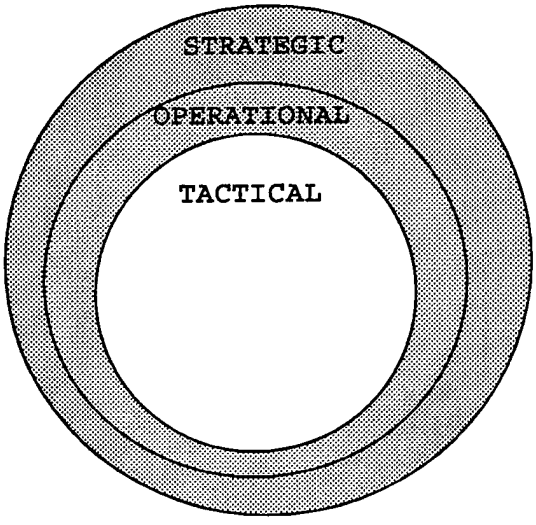
blueprints for change, there is a another urgent need for the services to put away their parochialism and together pull the Defense Department into the twenty-first century.



Previous assumptions on the
relationship between the levels of war



Current basic relationship between the levels of war



Near future relationship between the levels of war

Fig. 1. Merging Levels Of War.

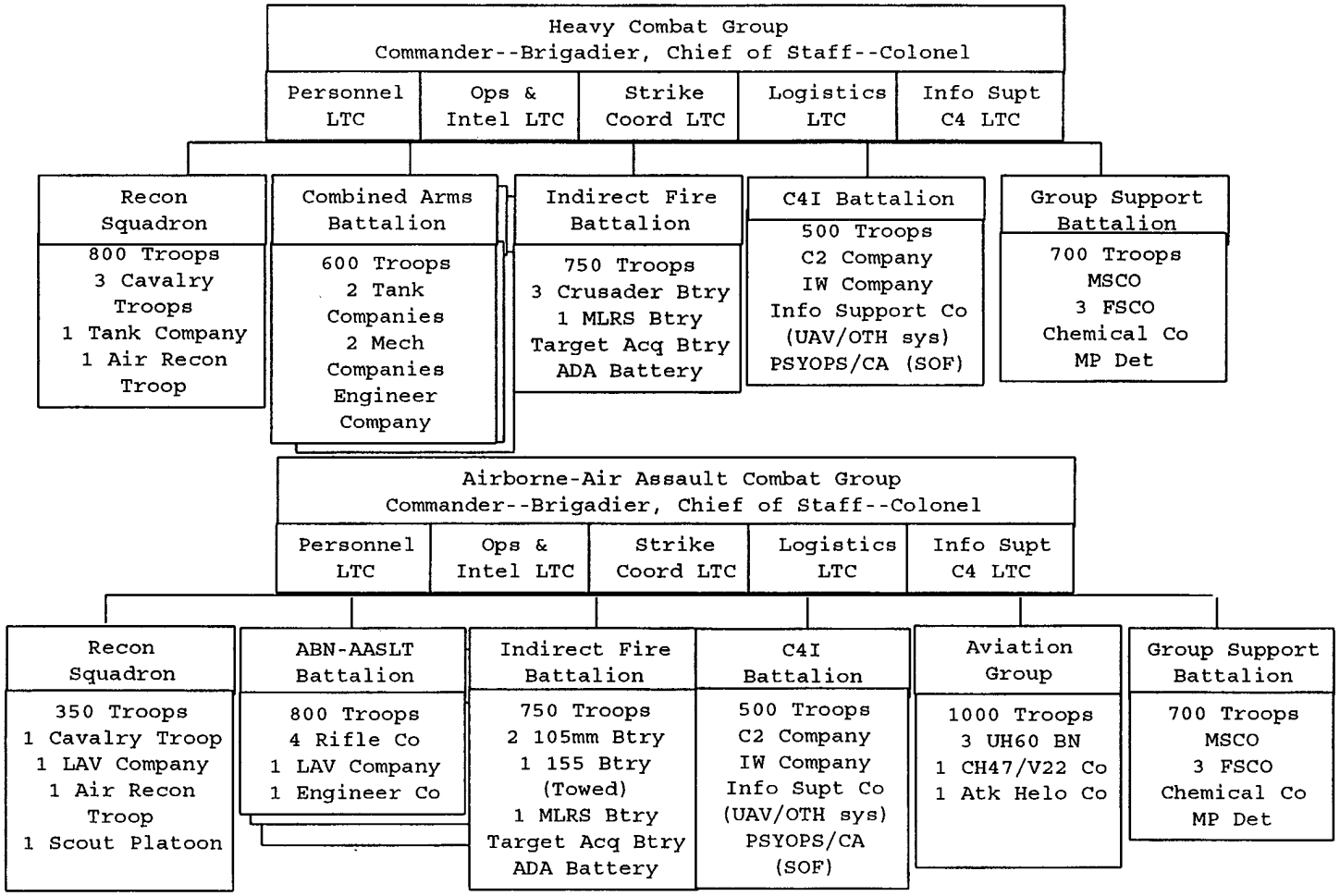


Fig. 2. Example Brigade Groups. The organization depicted differs in several ways from Breaking the Phalanx such as in assigning lift and attack helicopter assets to the airborne-air assault brigade group. The basis of these organizations is found in Douglas A. Macgregor, Breaking the Phalanx (Westport, CT: Praeger, 1997), 76, 77, 81.

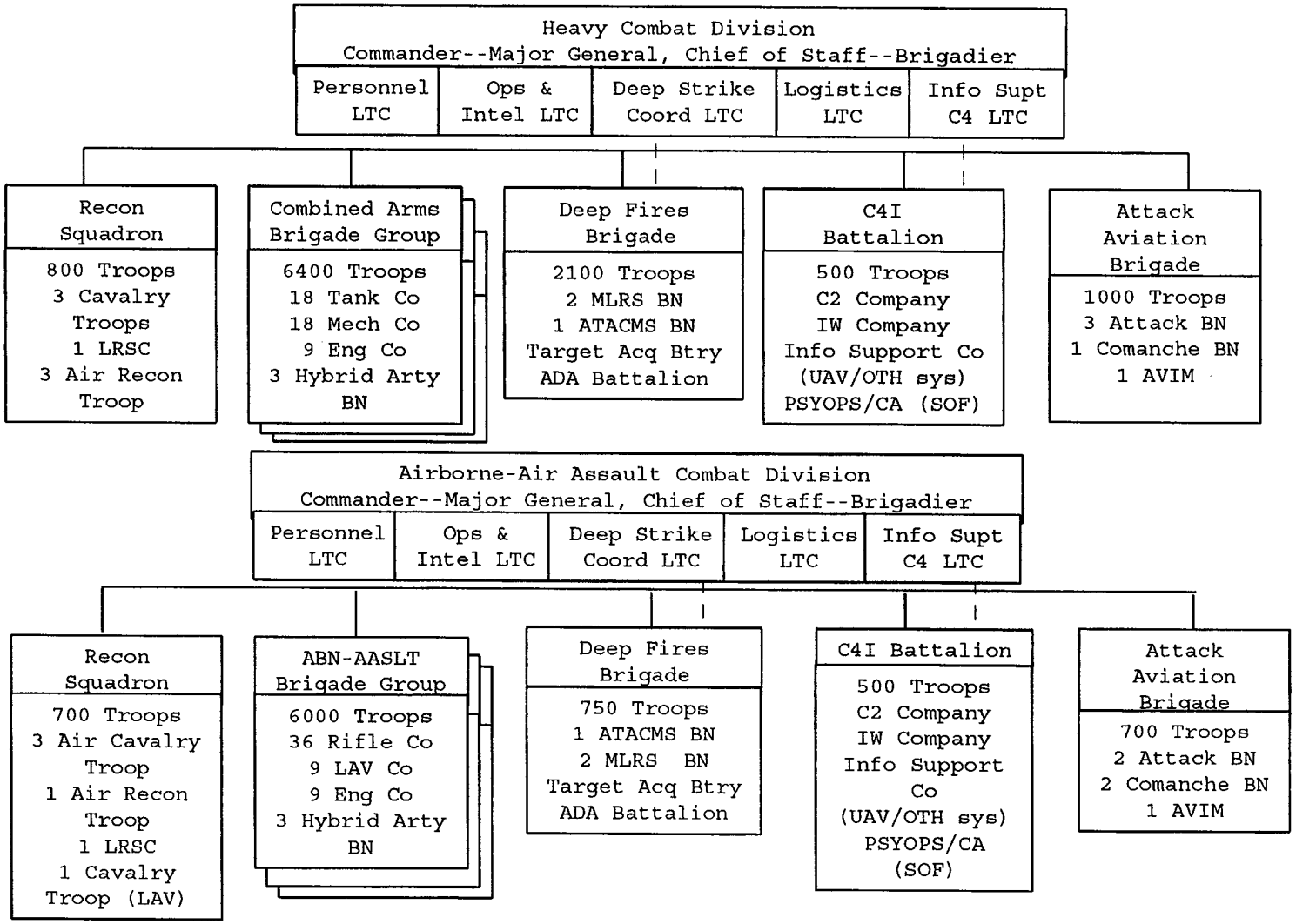


Fig. 3. Proposed Division Structures

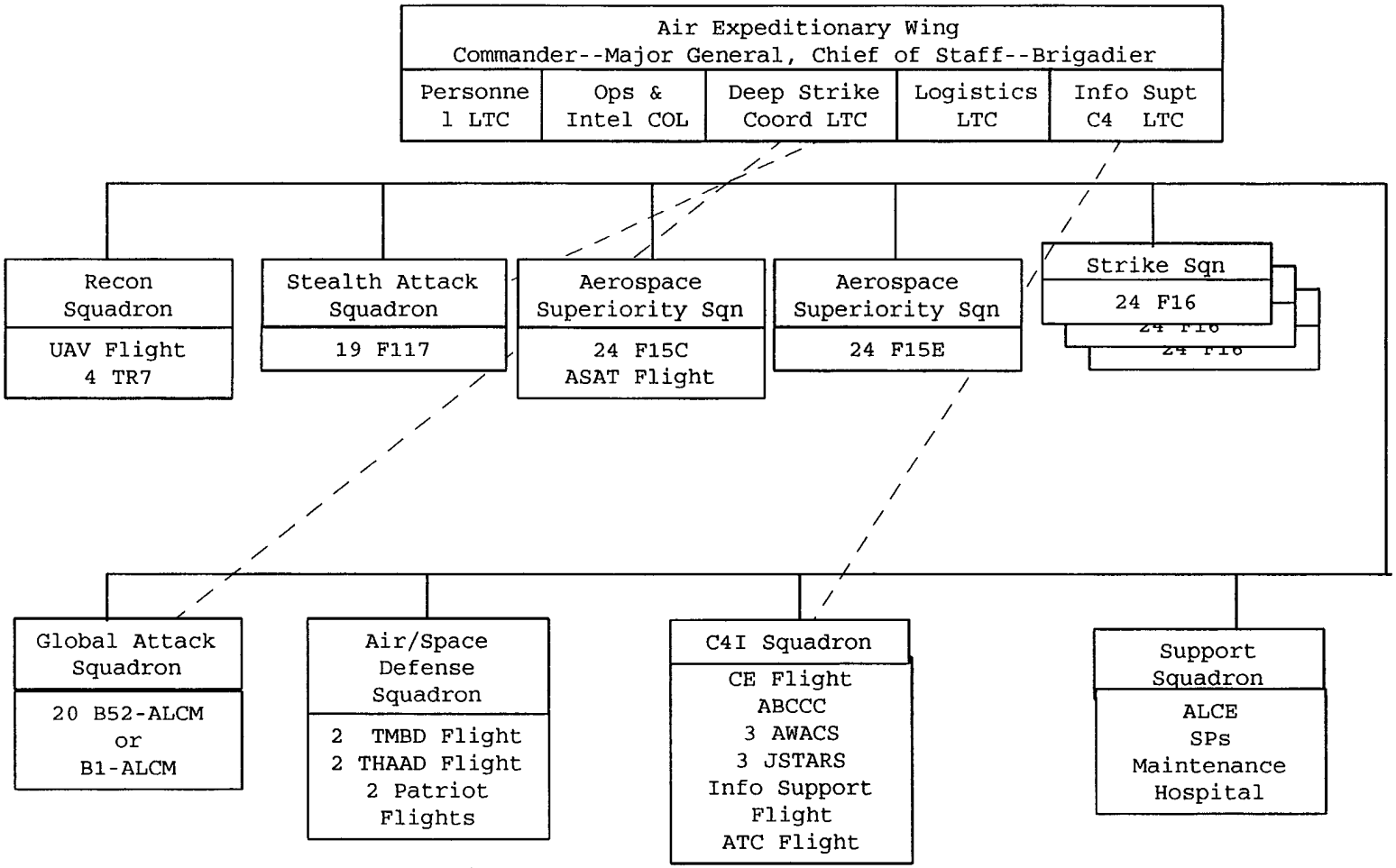


Fig. 4. Proposed Air Expeditionary Wing Organization

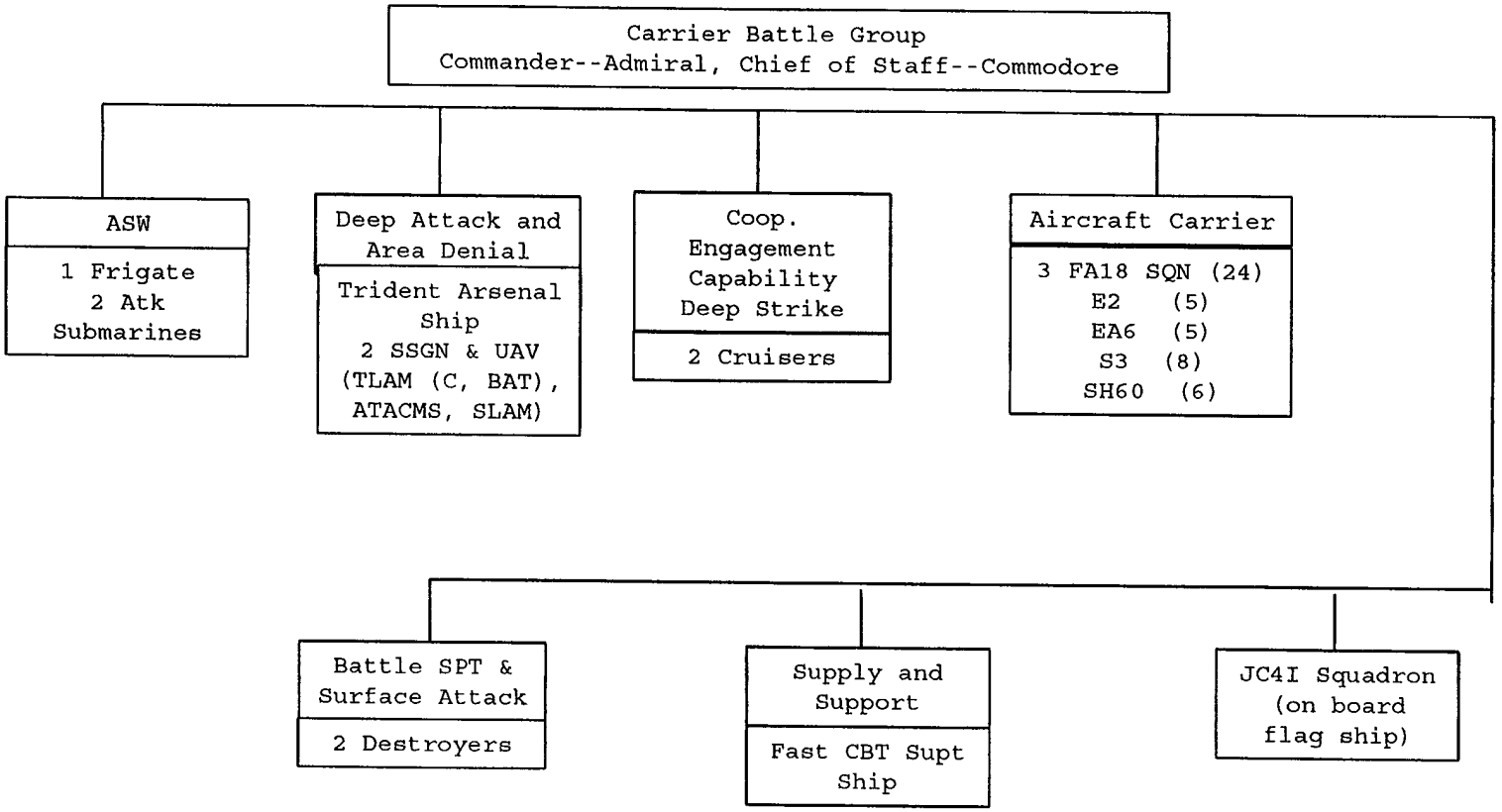


Fig. 4. Carrier Battle Group

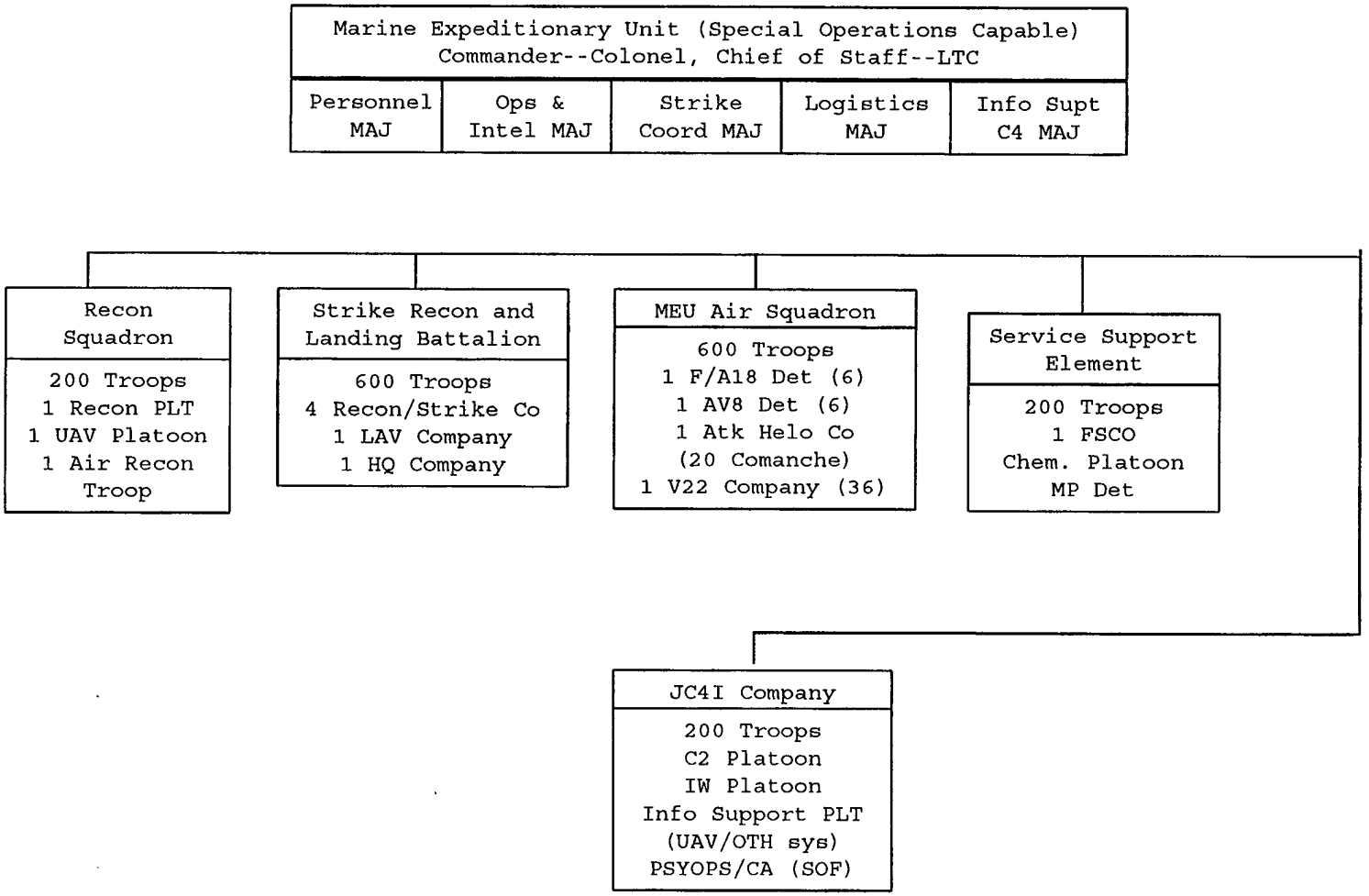


Fig. 6. EMA Marine Expeditionary Unit (Special Operations Capable)

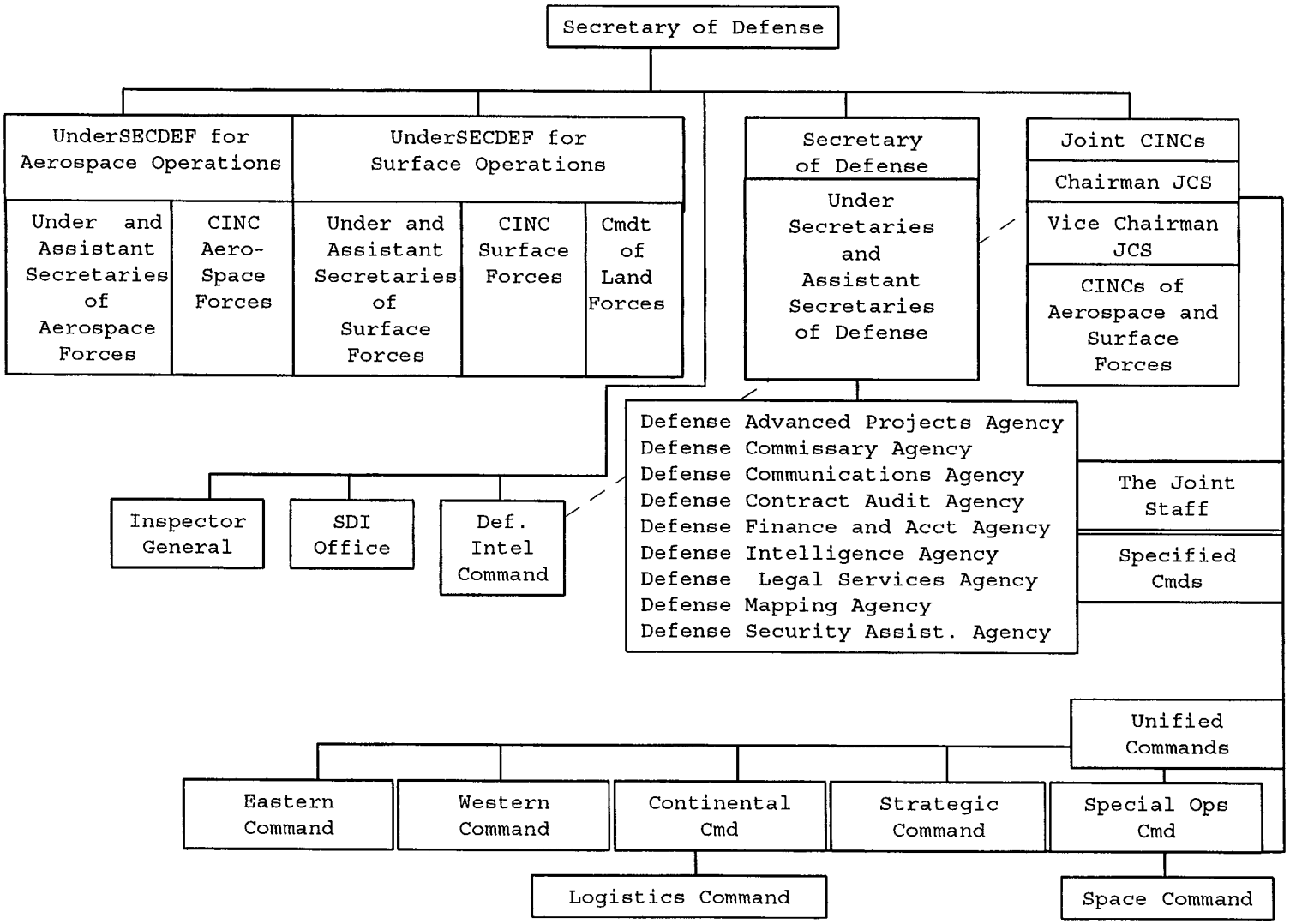
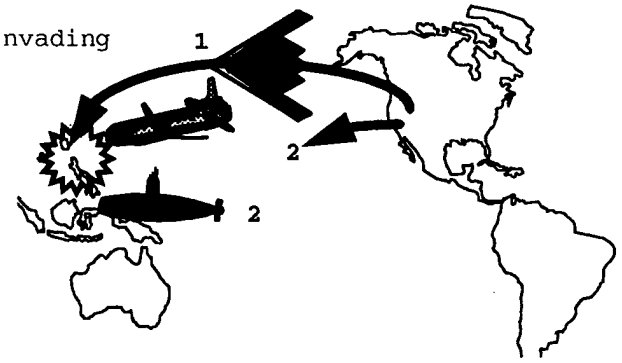


Fig. 7. Proposed Precision Strike DoD and Joint Organization

1. Global attack systems attack to interdict invading PRC forces and lines of communications as naval and CONUS based land forces alert and deploy



2. Naval forces join with the global attack to continue interdicting PRC land, air and sea forces and begin to set the conditions for the arrival of US land forces. Ports, air fields, ships are under continuous attack from US naval and aerospace forces. SOF provides reconnaissance, terminal guidance and locate likely force projection areas. Two land force divisions deploy to Guam by commercial aircraft and link up with MPS as an airborne-air assault division links up with a ready reserve force deployment carrier. An AEW is enroute. PRC satellites are interdicted.
The crisis is two to five days old.

3. Within an area isolated by the fires and cover of a forward deployed AEW and CVBG with SSANs and CEC, a joint Marine, air assault operation seizes a foothold to support the JLOTS landing of two divisions on Taiwan for a total of three divisions. Concurrently, global attack, AEW elements and naval air and TLAMs interdict PRC support of forces on Taiwan, while limiting the focus of attacks on the areas supporting the PRC operation. With ports shut down and LOCs cut, PLA forces on Taiwan fight with dimensioning resources. The crisis is less than twenty days old.

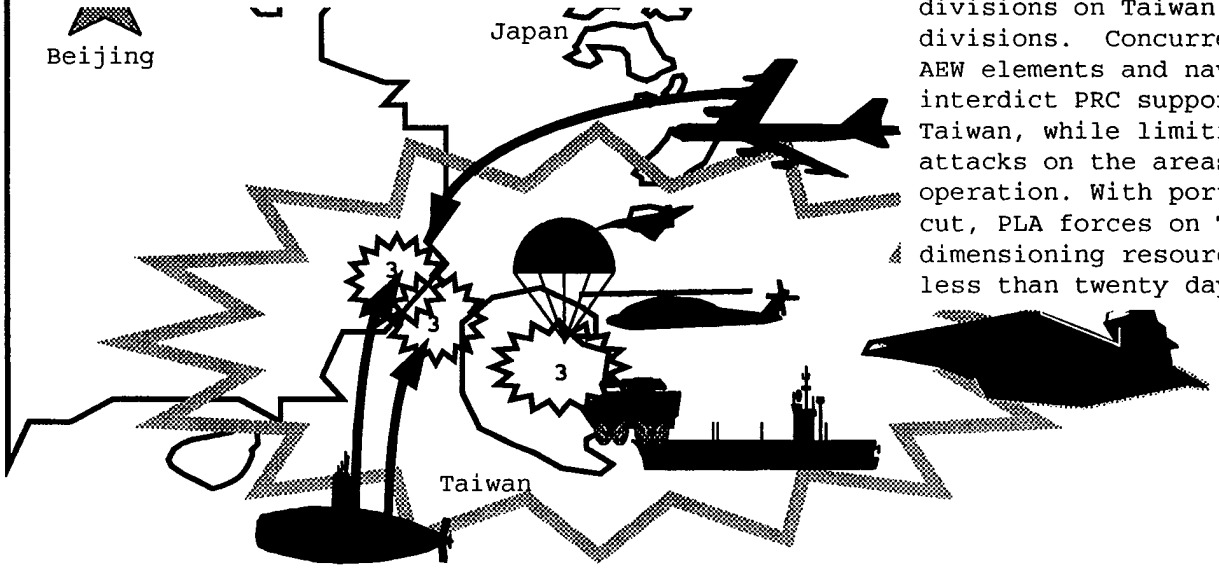


Fig. 8. EMA Concept of Operations Taiwan/China

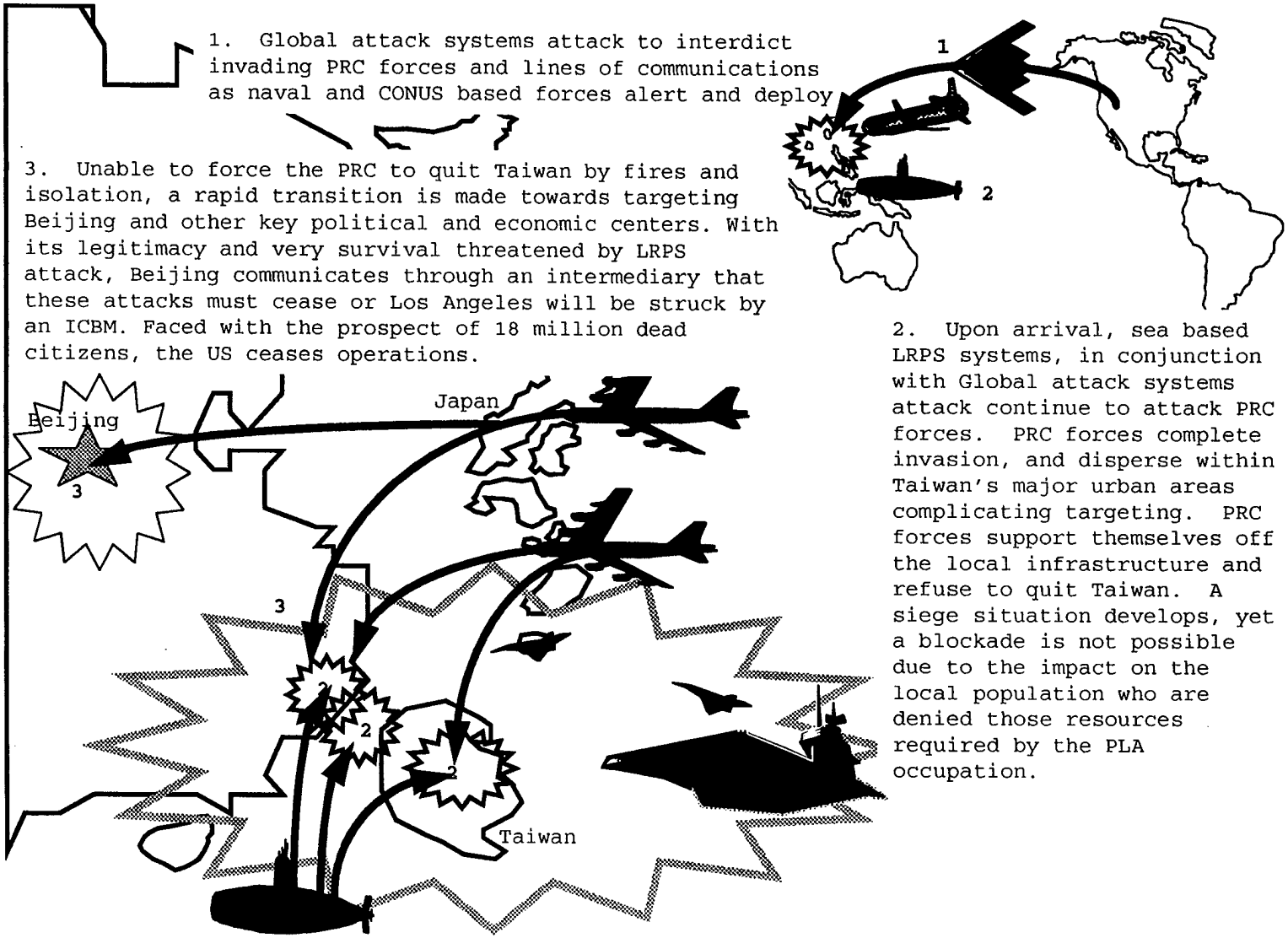


Fig. 9. RMA Concept of Operations Taiwan/China

TABLE 1

NATION STATE DIVISIONS WITHIN A TRISECTED WORLD

Third Wave States	
Post Industrial	Advanced Industrial
Australia	CIS (minus)
Canada	Hong Kong
European Union	Israel
Japan	Singapore
New Zealand	South Africa
Russia	Taiwan
United States	Malaysia
	Korea
Second Wave States	
Industrial	Transitioning Industrial
China	Argentina
CIS (minus)	Brazil
Chile	Costa Rica
India	Iran
Pakistan	Iraq
Philippines	Mexico
Thailand	Vietnam
Turkey	Asia (minus)
Venezuela	
First Wave States (Preindustrial)	
Africa (minus)	
Southwest Asia (minus)	
South Asia (minus)	
South America (minus)	

Source: Charles W. Taylor, A World 2010: A New Order of Nations, (Carlisle Barracks: US Army War College, Strategic Studies Institute, 1991), 16; and Alvin Toffler, and Heidi Toffler, War and Anti-War: Survival at the Dawn of the 21st Century, (Boston: Little, Brown and Co., 1993), 21-22. Also see chapter 4.

TABLE 2

EMA FORCE RECAPITULATION
(Future active/reserve (current))

	Land	Aerospace	Naval	SOF	LOGCOM
Total	8/3 (10/8)	10/10 AEWs (24)	8 CVBG	2 MARDIV 8 SF/NAV Groups	
Heavy	6/1 (6/7)				2 TAACOM
Light	2/2 (4/1)				1 TAACOM
Fighter Attack	420 AH 140 WUAV	1200/1200 (2,655)	800/50 (1200/100)	96	
Bomber		200/200 (195)			
SSBN			16 (16)		
SSGN			30 (29)		
SSN			50 (50)		
SSAN			8 (0)		
CVN			8/4 (12)		
FFG, DDG, and CG			96 (126)		
Cruise Missile		200 (91)	70		
Marine				2 DIV (3/1)	
SOF				4 Groups 4 NAVSPEC WARGP	
FSL, MPS, JLOTS	32 MPS (19)			8 MPS/ JLOTS (13)	24 FSL with JLOTS (8 FSL)
Airlift				2 SOW	350 (322) C17, 747 or new C5

Table specific acronyms: AH-attack helicopter, CG-cruiser, CVN-aircraft carrier, DDG-destroyer, FFG-frigate, FSL-Fast Sealift ship, MARDIV-Marine Division, NAVPECWARGP-Naval special warfare groups, SF-Special Forces, SSBN-ballistic missile submarine, SSGN-missile attack submarine, SSN-attack submarine

Force and system figures are based on requirements outlined in chapter 6 and designed to meet the challenges outlined in chapters 4 and 5. Baseline figures and capabilities are found in these sources: The Military Balance 1995/96, (London: Oxford University Press, for The International Institute for Strategic Studies, 1996), 23-32; and Department of Defense, Conduct of the Persian Gulf War, (Washington, DC: US Government Printing Office, April 1992), 95, 106, 184, 223, 386, 388.

TABLE 3

RMA FORCE RECAPITULATION
(Future active/reserve (current))

UNIT/SYSTEM	SURFACE	AEROSPACE	LOGCOM
Total	8/0 CVBG (12/0) 2/5 DIV (13/9) 8 SOF Grp (9/4)	10/10 AEWs (24)	
Heavy (Army)	1/4 (6/7)		
Light (Marine)	1/1 ((7/2) with USMC DIV)		
Fighter Attack	240 AH 140 WUAV 720/50	1200/1200 (2,655) (more UAV, less manned aircraft)	
Bomber		200/200 (195)	
LRPS Systems		ASAT, CICBM, Exponential Inc. in TLAM/ALCM, Inc. and Imp. satellite sys.	
SSBN	16 (16)		
SSGN	20 (29)		
SSN	30 (50)		
AVN	10 (0)		
SSAN	10 (0)		
CVN	8/2 (12)		
FFG	20 (49)		
DDG	20 (46)		
CG	20 (32)		
T/ALCM CAPABLE	70	200 (91)	
Marine			
SOF	4 Groups 4 NAVSPEC WARGP	2 SOW	
FSL/ MPS/ JLOTS	26 MPS (19)		26 FSL/ JLOTS (6 FSL)
C17 & 747 or new C5			200 (322)

Table specific acronyms: AH-attack helicopter, CG-cruiser, CVN-aircraft carrier, DDG-destroyer, FFG-frigate, FSL-Fast Sealift ship, MARDIV-Marine Division, NAVPECWARGP-Naval special warfare groups, SF-Special Forces, SSBN-ballistic missile submarine, SSGN-missile attack submarine, SSN-attack submarine

ENDNOTES

Chapter 1

[1]Commission on Integrated Long-Term Strategy, Discriminate Deterrence: Report of the Commission on Integrated Long-Term Strategy, by Fred C. Ikle and Albert Wohlstetter, Co-chairmen, (Washington, DC: The Commission on Integrated Long-Term Strategy, January 1988).

[2]During General Sullivan's term as Army Chief of Staff, the Army created the Louisiana Maneuver Task Force to investigate and implement experimentation in technological applications for the US Army. This effort gave birth to what is now known as Force XXI, as well as the battle lab system used for experimentation. Additionally, General Sullivan wrote extensively on the subject during his tenure as Chief of Staff, and afterwards. His positions are clearly delineated in works such as: American's Army: Into the Twenty-First Century, (Washington, DC: Institute for Foreign Policy Analysis, 1993); Seeing the Elephant: Leading America's Army into the Twenty-First Century, (Washington, DC: Institute for Foreign Policy Analysis, 1995); The Army in the Information Age, (Carlisle Barracks: US Army War College, Strategic Studies Institute, 31 March 1995); and "Future Vision," Military Review 65, no. 3 (May-June 1995): 5-14.

[3]Alvin Toffler and Heidi Toffler, War and Anti-War: Survival at the Dawn of the 21st Century, (Boston: Little, Brown and Co., 1993), 3.

[4]Andrew F. Krepinevich, Jr., "Cavalry to Computer, The Pattern of Military Revolutions," The National Interest no. 37 (Fall 1994): 30.

[5]Krepinevich, "Cavalry to Computer," 30-36.

[6]Toffler, 3.

[7]Clifford J. Rogers, "The Military Revolution in History," in The Military Revolution Debate: Readings on the Military Transformation of Early Modern Europe, ed. Clifford J. Rogers, (Boulder, CO: Westview Press, 1995), 2-5.

[8]Peter Paret, "Napoleon and the Revolution in War," in Makers of Modern Strategy, from Machiavelli to the Nuclear Age, ed. Peter Paret, (Princeton, New Jersey: Princeton University Press, 1986), 124.

[9]Eliot A. Cohen, "A Revolution in Warfare," Foreign Affairs 75, no. 2 (March/April 1996): 46.

[10]Ibid., 46.

[11]Getting it right is a condition rarely achieved by peacetime militaries. Michael Howard, "Military Science in an Age of Peace," RUSI, Journal of the Royal United Service Institute for Defense Studies 119 (March 1974): 6.

[12]Giulio Douhet in Peter G. Tsouras, Warrior's Words, A Quotation Book, (New York: Sterling Publishing Company, Inc., 1992), 21.

[13]Dr. David Jablonsky, US Army War College, makes a case for caution in approaching the RMA. Change is a two-edged sword that can be detrimental as well as beneficial, depending on how the organization approaches it. He counsels prudence, stating that there is a role for both change and continuity in an uncertain environment. David Jablonsky, Time's Cycle and National Military Strategy: The Case for Continuity in a Time of Change, (Carlisle Barracks: US Army War College, Strategic Studies Institute, 1 June 1995), 1, 56. Dr. Earl H. Tilford, Jr., US Army War College, asserts that future victories may not always go to the force with the most modern, revolutionary equipment. "There is no reason to believe that in the information age victory will not accrue--as it has in the past--to the side which develops the superior strategy and which has the greater capacity for enduring that strategy." Earl H. Tilford, Jr., The Revolution in Military Affairs: Prospects and Cautions, (Carlisle Barracks: US Army War College, Strategic Studies Institute, 23 June 1995), 17.

[14]Thomas R. Ricke, "Warning Shot: How Wars are Fought Will Change Radically, Pentagon Planner Says," Wall Street Journal, 15 July 1994, sec. A, pp. 1, 5.

[15]The Fletcher Conference is an annual national security forum sponsored by the International Security Studies Program at the Fletcher School of Law and Diplomacy, Tufts University, and Office of the Deputy Chief of Staff for Operations, Department of the Army. The 1996 conference focused on war in the information age. Richard Perle, "Defense Planning for the 21st Century," speech to the Institute for Foreign Policy Analysis, Cambridge MA, on 13 November 1996.

[16]George Friedman and Meredith Friedman, Future of War, (New York: Crown Publishers, 1996), xii, 373-376, 418-420.

[17]Edward N. Luttwak, "A Post Heroic Military Policy," Foreign Affairs 74, no. 3 (July/August 1996): 33-44.

[18]General Moorman, USAF Vice Chief of Staff, advanced the Air Force vision of finding, fixing, and killing anything on the surface of the planet; his remarks were summarized by a Fletcher Conference attendee. The authors of the Future of Warfare, George and Meredith Friedman, postulate an emerging warfare type devoid of what Andrew Marshall characterized as "sunset" systems and built around space based

and ground based sensor and strike systems that obviate the utility of any system familiar to today's concept of war. Friedman, 373-376.

[19]The concept of air occupation--use of weaponized unarmed aerial vehicles and space systems that can loiter over an area indefinitely and detect and strike forces below--is found in "Strikestar 2025", in 2025 (August 1996), Maxwell AFB, AL: Air University (on-line), available: http://www.au.af.mil/au/2025/monographs/E-S/e-s.htm (Internet).

[20]Chairman of the Joint Chiefs of Staff, Joint Vision 2010, (Washington, DC: Chairman of the Joint Chiefs of Staff, 1996), 1-7. Cited hereafter as Joint Vision 2010.

[21]Joint Vision 2010, 2.

[22]Michael E. Porter, "What is Strategy?" Harvard Business Review 74, no. 6 (November-December 1996): 62-64.

[23]The current QDR approach is to address strategy within the reality of a constrained defense budget. Jack Weible, "Looking to 2010: Civilian panel to examine QDR, make its own recommendations," Army Times, 5 May 1997, 19.

[24]The US Army Force XXI plan, the force of Joint Vision 2010 and Army Vision 2010, shows M1A2 tank fielding beginning in Fiscal Year (FY) 99, and M2A3 Bradley Fighting Vehicle fielding beginning in FY 00. The first Force XXI division is scheduled to be fielded in FY 01, and follow on divisions will be fielded at the rate of one and one third divisions per year. At this rate, an eight division Army would complete Force XXI fielding around 2007. Training and Doctrine Command (6 March 1997), "Synchronization Matrix," in Force XXI, Ft. Monroe, VA: Training and Doctrine Command (on-line), available: http://204.7.227.75:433/synch/slide1.html (Internet). The M1 tank made its debut in the early 1980's; it and similar systems will still be in the Army in 2007 and beyond.

[25]General John M. Shalikashvili, Chairman, Joint Chiefs of Staff, as quoted by Richard J. Newman, "Warfare 2020: Ones and Zeroes, Not Bombs and Bullets, May Win Tomorrow's Battles," US News and World Report, 5 August 1996, 37.

[26]Toffler, 182.

[27]Secretary of Defense William Cohen, quoted by George C. Wilson, Army Times contributing editor. George C. Wilson, "Secy. Cohen sets the ground rules," Army Times, 17 March 1997, 3.

[28]Commission on Roles and Missions of the Armed Forces, "Glossary," in, Directions for Defense: Report of the Commission on Roles and Missions of the Armed Forces, (Washington, DC: US Government

Printing Office, 24 May 1995), Gloss.1. Cited hereafter as Directions for Defense.

[29]Directions for Defense, Gloss.5; and Department of Defense, Department of Defense Directive 5100.1. Functions of the Department of Defense and its Major Components, (Washington, DC: Department of Defense, 25 September 1987). Cited hereafter as Functions of DoD.

[30]Directions for Defense, Gloss.6.

[31]Office of Net Assessment, "Tab C: Presentation on Dominating Maneuver," in, "Dominating Maneuver Workshop IV, Summary Report," summary of presentations, assessments and outcomes from workshop IV, (Carlisle Barracks: US Army War College, August 1996).

[32]Tilford, Revolution in Military Affairs, 1.

[33]Directions for Defense, Gloss.8.

[34]US Law prescribes the roles of the Armed Forces. The Army "shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations on land. It is responsible for the preparation of land forces necessary for the effective prosecution of war except as otherwise assigned and, in accordance with integrated joint mobilization plans, for the expansion of the peacetime components of the Army to meet the needs of war." Armed Forces Act, US Code, Title 10, Section 3001, Subtitle B - Army, Part I - Organization; Chapter 307 - The Army; Section 3062 - Policy; Composition; Organization Peace Establishment; (a).

[35]A NASA study projects rates of technological change that are continuous. Processor power will double every year, memory density will double every two years, disk capacity will double every three years, and seek rates will double every 10 years. National Aeronautics and Space Administration, Office of Space Communications (March 1993), "Technology Directions for the 21st Century" (on-line), available: http://www.nml.org/resources/misc/...s/techdirections.html#hypothetic (Internet).

[36]The defense industry is a great proponent of a revolutionary, technologically driven path to a future military force. One briefing provided during the October 1996 Electronics Industries Association Fall Conference was entitled "The Defense Market 2010 and Beyond (Systems of the Revolution in Military Affairs)." This briefing describes aircraft, aircraft carriers, tanks and maneuver warfare as the "casualties" of the RMA, and concepts like massive standoff, and weapons such as lasers, and the like as the "children" of the RMA. Electronics Industries Association "The Defense Market 2010 and Beyond (Systems of the Revolution in Military Affairs)," EIA presentation on future and implications for military forces, technology, and strategy, EIA, Fall Conference, 17 October 1996, 37-40.

Chapter 2

[1]Andrew Krepinevich states in several publications and articles that predicting the future is almost impossible, "a new vision can be no more that a 'best guess'." Andrew F. Krepinevich, Jr., The Conflict Environment of 2016: A Scenario Based Approach, (Washington, DC: Center for Strategic and Budgetary Assessments, October 1996), 1. While this is true, decision makers must be able to make a connection with the forecast or scenario in order for it to be useful. If the "managers who hear it [don't] know what to do with it . . . ," then it is of little or no use. Pierre Wack, "Scenarios: shooting the rapids," Harvard Business Review 63, no. 5 (November-December 1985): 139.

[2]Charles W. Taylor, A World 2010: A New order of Nations, (Carlisle Barracks: US Army War College, Strategic Studies Institute, 1991), 4.

[3]Felipe Fernandez-Armesto, Millennium: A History of the Last Thousand Years, (New York: Scribner, 1995),

[4]Henry Kissinger, Diplomacy, (New York: Simon and Schuster, 1994).

[5]Kissinger, 17-28.

[6]Krepinevich, "Cavalry to Computer," 30-42.

[7]Clifford J. Rogers, The Military Revolution Debate: Readings on the Military Transformation of Early Modern Europe, (Boulder, CO: Westview Press, 1995).

[8]Martin van Creveld, Technology and War: From 2000 B.C. to the Present, (New York: The Free Press, 1989).

[9]This disclosure was made in a conversation with COL Rowell from the Secretary of Defense's Office of Net Assessment, the keeper of DoD's RMA flame, so to speak. This decision ensures that none of the services are constrained in their development of concepts and options for achieving both the capabilities outlined in Joint Vision 2010 and in the already surfacing "force after next" projects. Scott Rowell, interview by the author, 15 October 1996, Washington, DC, telephone, Office of Net Assessment, Office of the Secretary of Defense, The Pentagon. It may also be that the services cannot agree on a future projection, though the author's study of the many DoD publications (Army, War College, National Defense University, Air Force), shows that there is a common ground in the characterization of the general environment and world and technological trends.

[10]Toffler, 3.

[11]Samuel P. Huntington, The Clash of Civilizations and the Remaking of World Order, (New York: Simon & Schuster, 1996).

[12]Robert D. Kaplan, The Ends of the Earth: A Journey at the Dawn of the 21st Century, (New York: Random House, 1996).

[13]Herman Kahn, William Brown, and Leon Martel, The Next 200 Years: A Scenario for America and the World, (New York: William Morrow and Co., 1976).

[14]Hammish McRae, The World in 2020: Power, Culture, and Prosperity, (Boston: Harvard Business School Press, 1994).

[15]John L. Petersen, The Road to 2015, Profiles of the Future, (Corte Madera, Ca.: Waite Group Press, 1994).

[16]Charles W. Taylor, A World 2010: A New Order of Nations, (Carlisle Barracks: US Army War College, Strategic Studies Institute, 1991).

[17]Charles W. Taylor, Alternative World Scenarios for A New Order of Nations, (Carlisle Barracks: US Army War College, Strategic Studies Institute, 1993).

[18]Patrick M. Cronin, ed., 2015: Power and Progress, (Washington, DC: Institute for National Strategic Studies, National Defense University, July 1996).

[19]"Conclusions and Recommendations," in 2015: Power and Progress, ed. Patrick M. Cronin, (Washington, DC: Institute for National Strategic Studies, National Defense University, July 1996), 147-154.

[20]2025 (August 1996), Maxwell AFB, AL: Air University (on-line), available: http://www.au.af.mil/au/2025/monographs/E-S/e-s.htm (Internet).

[21]These articles address future trends that will impact the military environment; they also address how the Defense Department should change to meet these challenges. Andrew F. Krepinevich, Jr., "Keeping Pace with the Military-Technical Revolution," Issues in Science and Technology 10, no. 4 (Summer 1994): 23-29; "Recasting Military Roles and Missions," Issues in Science and Technology 11, no. 3 (Spring 1995): 41-48; "Transforming the Navy's War-fighting Capabilities," Issues in Science and Technology 13, no. 1 (Fall 1996): 28-32; "The Air Force at a Crossroads," Issues in Science and Technology 13, no. 2 (Winter 1996-97): 42-48.

[22]Andrew F. Krepinevich, Jr., The Conflict Environment of 2016: A Scenario Based Approach, (Washington, DC: Center for Strategic and Budgetary Assessments, October 1996).

[23]Hans J. Morgenthau, Politics Among Nations: The Struggle for Power and Peace, 5th ed., (New York: Alfred A. Knopf, 1973).

[24]James T. Lowe, Geopolitics and War: MacKinder's Philosophy of Power, (Washington, DC: University Press of America, Inc., 1981).

[25]Lowe, ix.

[26]Lowe, 1-35.

[27]Paul M. Kennedy, The Rise and Fall of the Great Powers, (New York: Vintage Books, 1989).

[28]"[But if a nation] chooses to devote a large proportion of its total income to 'protection,' leaving less for 'productive investment,' it is likely to find its economic output slowing down, with dire consequences for its long-term capacity to maintain both its citizens' consumption and its international position." Kennedy, 539.

[29]Harry G. Summers, The New World Strategy: A Military Policy for America's Future, (New York: Simon and Schuster, 1995).

[30]Summers, 207.

[31]Summers, 207-208.

[32]Summers, 207-232.

[33]Martin van Creveld, The Transformation of War, (New York: The Free Press, 1991), 192.

[34]Martin C. Libicki, et al. (July 1996), The Revolution in Military Affairs (on-line), available: http://www.ndu.edu/ndu/inss/strforum/z1106.htm (Internet).

[35]Stuart Johnson and Martin C. Libicki, eds., Dominant Battle Space Knowledge, (Washington, DC: Institute for National Strategic Studies, National Defense University, April 1996).

[36]Donn A. Starry, "To Change an Army," Military Review, (March 1983): 20-27.

[37]Susan Jackson, "Strategic Planning," Business Week, (26 August 1996): 46-53.

[38]Jackson, 46.

[39]Michael E. Porter, "What is Strategy?" Harvard Business Review, (November-December 1996): 61-78.

[40]Porter, 62.

[41]Andrew F. Krepinevich, Jr., The Air Force in 2016, (Washington, DC: Center for Strategic and Budgetary Assessments, October 1996).

[42]This lack of a proposed or base Joint Vision 2010 force structure is a conclusion derived from a conversation with the J7, Joint Chiefs of Staff (JCS), staff officer who is the JCS action officer for Joint Vision 2010. The lack of a "straw man" has many contributing factors, including most immediately the Quadrennial Defense Review. Service positions in preparation for this review, and the lack of a pre-eminent view of the future to base decisions on. Additionally, the Army Force XXI very much reflects organizations and equipment in service today. Office of Net Assessment, "Introduction," in "Dominating Maneuver Workshop IV, Summary Report," summary of presentations, assessments and outcomes from workshop IV, (Carlisle Barracks: US Army War College, August 1996), 8-12, and 15-17. Advocates of precision strike based forces do not commit themselves to specifics of what to cut and what to build, only that the US military must de-emphasize manpower intensive forms of warfare for what this thesis terms RMA based forces. In Perle, "Defense Planning for the 21st Century;" and Luttwak, "A Post Heroic Military Policy," 33-44.

[43]Krepinevich, "Recasting Military Roles and Missions," 45.

[44]Idem, "Keeping Pace with the Military-Technical Revolution," 23-25.

[45]Ibid., 25, 28; idem, "Transforming the Navy's War-fighting Capability, 28; and idem, "The Air Force at a Crossroads," 45.

[46]Ibid., 23-25; and idem, "Recasting Military Roles and Missions," 45-47.

[47]"To maintain our role as a credible security partner, U.S. forces must be capable of conducting a wide range of operations . . . it is possible for DOD to reconcile the need to reduce some forces with the objective of maintaining the capability to fight two major, nearly simultaneous wars . . . a small force--if it is the right one--can accomplish the same goals." David Ochmanek, "Time to Restructure U.S. Defense Forces," Issues in Science and Technology 13, no. 2 (Winter 1996-97), 35-36.

[48]Ibid., 37-39.

[49]Ibid., 40-41.

[50]Patrick M. Cronin, "Prologue," in 2015: Power and Progress, ed. Patrick M. Cronin, (Washington, DC: Institute for National Strategic Studies, National Defense University, July 1996), xi; and ibid., "Conclusions and Recommendations," 149-151.

[51]Ibid., 153.

[52]Luttwak, "A Post Heroic Military Policy," 33-44.

[53]Ibid., 40.

[54]Ibid., 40.

[55]Ibid., 42.

[56]Ibid., 43-44.

[57]Perle, "Defense Planning for the 21st Century;" and Richard Perle (23 December 1996), "Paring the Pentagon: Clinton's Indefensible Defense Strategy," in Rising Tide (on-line), available: http://rnc.org/news/tide/9404/article06.htm (Internet).

[58]Perle, "Defense Planning for the 21st Century."

[59]Richard Perle quoted in Jack Weible, "Looking to 2010: Civilian panel to examine QDR, make its own recommendations," Army Times, 5 May 1997, 19.

[60]Perle, "Defense Planning for the 21st Century."

[61]Robert Murray, et al., "Appendix E: International Security for the Post-Cold War Era," in Foreign Policy Into the 21st Century, ed. Douglas Johnston, (Washington, DC: CSIS, September 1996), 121-123.

[62]Ibid., 122.

[63]Ibid., 122.

[64]Summers, 207-208.

[65]Department of the Army (1996), Army Vision 2010, Washington, DC: Department of the Army (on-line), available: http://160.147.68.21.:80/2010/introduction.htm (Internet).

[66]Department of the Air Force (1996), Global Engagement: A Vision of the 21st Century Air Force, Washington, DC: Department of the Air Force (on-line), available: http://www.af-future.hq.af.mil/21/intro.htm (Internet). Cited hereafter as Global Engagement.

[67]Department of the Navy (14 February 1997), Forward . . . From the Sea, Washington, DC: Department of the Navy (on-line), available: http://www.chinfo.navy.mil/navpalib/policy/fromsea/forward.txt (Internet). Cited hereafter as Forward . . . From the Sea.

[68]Ibid., 44.

[69]Dan Goure, a Center for Strategic and International Studies analyst, cautions that the reorganization of the military to take

advantage of RMA technology may be fine against a first world competitor, but may not be so useful in a regional conflict. ". . . the Administration should wait until it has decided what kinds of wars the United States will be fighting before it decides to go ahead." Art Pine, "Pentagon Looks To Start High-Tech Revolution In Ways Of War," The Los Angeles Times, 27 July 1994, A5.

Chapter 3

[1]Morgenthau, 542.

[2]Summers, 232.

[3]Joint Vision 2010, 1-2, 19.

Chapter 4

[1]Space Cast 2020 (22 June 1994), Maxwell AFB, AL: Air University (on-line), available: http://www.au.af.mil/Spacecast/Spacecast.html (Internet).

[2]Douglas A. Macgregor, Breaking the Phalanx: A New Design for Landpower in the 21st Century, (Westport: Praeger, 1997), 10-14.

[3]Ibid., 13; and Charles E. Kirkpatrick, An Unknown Future and a Doubtful Present: Writing the Victory Plan of 1941, (Washington, DC: US Government Printing Office, 1990), 64.

[4]Kirkpatrick, 92.

[5]Taylor, A World 2010, 4.

[6]These two USAF studies provide scenarios to assist in the discussion of future space and aerospace systems and doctrine. Space Cast 2020 considers the development, utility and employment of space based systems; Space Cast 2020, available: http://www.au.af.mil/Spacecast/Spacecast.html (Internet). 2025 deals with the overall strategy for the development, employment and utility of aerospace force; 2025, available: http://www.au.af.mil/au/2025/monographs/E-S/e-s.htm (Internet). These scenarios, using 2025 as an example, were based on changes in three drivers: the American World View (global to domestic), development of technology (constrained to exponential) and world power (concentrated to dispersed). While the methodology was sound, indeed both studies enlisted the participation of many noted futurists, some of the conclusions and hence the scenarios failed to connect with the audience. In the case of 2025, the scenarios were "out of the box" and finally required the development of an intermediate future with which the "customer" could relate; see Alternative Futures for 2025, in 2025 (August 1996), Maxwell AFB, AL: Air University (on-line), available:

http://www.au.af.mil/au/2025/monographs/A-F/a-f-2.htm (Internet). This need of an intermediate scenario demonstrates a pitfall of a scenario based approach to the future. These illustration is not a dismissal of the utility of the issues raised by these studies, merely a representation of the potential shortfalls of this approach to the future. Another example is found in Andrew F. Krepinevich's The Conflict Environment of 2016. In it, China is depicted as attacking Indonesia for oppressing the Chinese minority. This scenario depicts China conducting itself in a historically unprecedented manner, operating well outside its realm, and taking umbrage at the oppression of expatriate Chinese when the PRC Government has shown no such concern regarding its own citizens. The scenario has utility in providing a vehicle for discussion of force projection, but the players are not linked to their historical and cultural roots. Krepinevich, The Conflict Environment of 2016, 25.

[7]Wack, "Scenarios: shooting the rapids," 139.

[8]Taylor, A World 2010, 4.

[9]Frederick Pohl (futurist, science fiction writer and University of Kansas professor) describes several of the more accepted future methodologies: Delphi, trend-line extrapolation, and scenario writing. The Delphi method, pioneered by RAND Corporation, "is a procedure in which questionnaires are circulated to a group of people, asking them for their estimates of when, or if, a long list of technological changes are likely to happen." Frederick Pohl, "Thinking About the Future," Futurist 30, no. 5 (September-October 1996): 10-11. In the case of this chapter, the previously written estimates of the future are used to answer questions about the future.

[10]Pohl outlines the inaccuracies associated with many future methodologies. He describes a technique called "normative forecasting" which uses accepted future methodologies to make a multitude of forecasts and then "apply[ing] some sort of value judgment to them" the future is "invented." Pohl, 10-11. This thesis applies such a method, synthesizing the conclusions of the USAF, Taylor, the Tofflers, Hamish McRae, Samuel Huntington, Robert Kaplan, National Defense University and Army War College studies, and others. Applying the author's values and judgment to the outcome, a probable future will be "invented."

[11]Andy Hines, "A Checklist for Evaluating Forecasts." Futurist 29, no. 6 (November-December 1995): 21-23.

[12]These assumptions, though supported by others, come from Taylor, A World 2010, 5-6. They are embraced for their validity and for their utility to this study. WAR: Lack of general war is a valid assumption. Between now and 2010, the potential for peer conflict between the US and either Russia or China is low given the present and projected economic conditions in each country. Other potential peers are generally free market democracies that have shown a capacity for economic conflict,

but have studiously avoided war. ECONOMIC DISASTER: A lack of economic disaster may be valid given present sustained growth rates in the emerging industrialized world--Asia's dragons and little dragons (Singapore (8.5 to 10%), Taiwan (9% over the last 30 years), Hong Kong (5% average over last 10 years), South Korea (average 8% over last 10 years) and Thailand (7.5 to 8%) and Malaysia (9% average over six years); and South America (Chile (6.5% the last four years), Argentina (7% over last four years) and Brazil (dropped inflation from double digits to 3%); Central Intelligence Agency (1995), The World Fact Book, Washington, DC: Central Intelligence Agency (on-line), available from http://www.odci.gov/cia/publications/95fact (Internet). In contrast, John L. Petersen, futurist and author of The Road to 2015, is not as positive about the future economy as is Taylor, Herman Kahn--growth and opportunity are primary themes in his book The Next 200 Years--and others. Petersen states "the major economic problem of the future stems from the fact that we don't know how economies really work . . . the behavior of economies are at least as complicated as human behavior . . . it is not linear . . . [and] the true principles of economic behavior are almost certainly closer to sociology or biology than they are to physics." Peterson goes on to outline "Major American Problems" given increasing bankruptcies, an increasing trade deficits with Asia, Europe, Canada and OPEC, and the national debt as a percentage of the federal budget. He also cites the 60 year Kondratief cycle where three depressions--1814 to 1849, 1873 to 1896, and 1930 to 1939--have occurred in the last 200 years. This implies that the world is due another depression in the 1990's. Petersen, 247-261, 263. Assuming possible economic disaster away is also appropriate for this study. Its existence would make an EMA force highly improbable due to severely constrained resources caused by US debt servicing, an increased trade deficit, and the potential for another depression. Also, addressing a possible economic calamity is beyond the scope of this paper and would greatly complicate analysis of RMA and EMA forces. TECHNOLOGICAL DOMINANCE: Assuming that no one state or world actor will develop dominating technology is valid. Historically, technological breakthroughs have not provided any actor dominance over the whole. Even nuclear arms failed to provide the US dominance over peer or even regional competitors, in part due to proliferation of the technology, and in part due to the limiting factor of their very power. With the pace of change increasing daily and unrestricted technology transfer on the verge of becoming a reality, it is unlikely that any actor will be able to develop, protect and retain exclusive access to and use of a dominating technology.

[13]This assumption is made based on almost 50 years of US policy focused on ensuring uninterrupted access to Persian Gulf oil, and clearly articulated in the Carter Doctrine. Richard Fairbanks, et al., "Appendix D, The Middle East," in Foreign Policy into the 21st Century: the US Leadership Challenge, ed. Douglas Johnston, (Washington, DC: The Center for Strategic and International Studies, 1996), 96. This doctrine is further reinforced by the actions of several

administrations: Reagan (Operations EARNEST WILL--Kuwaiti Tanker Re-flagging); Bush (Operation DESERT SHIELD/STORM); Clinton (more recent dealings with Iraq). Given continued dependence on oil, it is highly unlikely that the US would disengage from this region, regardless of the Nation's overall isolationist or internationalist tendencies.

[14]See Taylor, A World 2010, 6, and "Appendix B," Alternative Futures for 2025, in 2025, available: http://www.au.af.mil/au/2025/monographs/A-F/a-f-b.htm (Internet), for further discussion on the identification and use of trends.

[15]Taylor, A World 2010, 7; and "Appendix B," Alternative Futures for 2025, in 2025, available: http://www.au.af.mil/au/2025/monographs/A-F/a-f-b.htm (Internet).

[16]Toffler, 20-21.

[17]Kaplan describes the evolving problem of failed nation states throughout his book Ends of the Earth, and uses Africa as an example early on. Kaplan, Ends of the Earth, 8.

[18]While civil war will be a likely occurrence in these third world areas, sustained conflict between nations and factions is generally unsustainable. With the end of the Cold War, the end of ideological conflict between the US and USSR has ceased major support to these conflicts. The nations involved cannot afford it literally and figuratively, and neither can the regions where these nations are located. Several examples illustrate this point. The conflict between the Saharawi guerrilla organization POLISARIO and Morocco over the former Spanish Sahara (which the author experienced first hand as a UN military observer) sputtered along for 15 years, depressing an already poor region's economic potential. The Organization for African Unity petitioned the UN to intercede in order to cease the cycle of violence and end the depressing effect that this very limited conflict had on the region. Additionally, the formation and use of Executive Outcomes, a quasi-mercenary/professional military advisory team for hire, further illustrates the inability of nations to sustain conflict. Executive Outcomes has been used by several African nations, starting with Angola, to put down insurgencies with great efficiency--in terms of cost and time. The nations that have hired Executive Outcomes find their internal problems ended, and with stability restored, outside investment ready to bolster their economies.

[19]The bottom line is that that the rate of population growth is slowing, but the world population is still increasing and will continue to do so in the developing world for the next 20 years. The long term outlook, 30-50 years, is promising, but beyond the scope of this study. Taylor states "Demographers estimate that by the year 2010 world population will have increased by 30 percent over 1991." Taylor, A World 2010, 7, 29. Appendix B, Alternative Futures for 2025 outlines several issues associated with world population including: an increase

to 10 billion by 2025; an estimate by Gretchen Daily, a Stanford Biologist, "that at current rates of consumption and population growth every drop of fresh water available would be getting used by the year 2020 . . . ;" that most of the growth in population would be in the developing world where it can be the least sustained; that over use of arable land in high population areas leads to desertification (like the Sahale region of Africa, where the Sahara desert encroaches at a steady rate each year); and that "a direct consequence. . . [is] . . .an international refugee problem that already numbered between 20 and 40 million in 1994." "Appendix B," Alternate Futures 2025, in 2025, available: http://www.au.af.mil/au/2025/monographs/A-F/a-f-b.htm (Internet). As a counter to this startling forecast, Herman Kahn advances the proposition that prosperity generates lower birth rates, which in the long run will result in population equilibrium. He states first that "There is plenty of room in almost all countries for everybody to have a suburban lifestyle," and that prosperity yields reduced population growth rates, and these are decreasing at a rapid rate over time. He uses Japan as an example where that Nation's transition from a high population growth rate to a low growth rate took only 25 years, versus over 150 years for the US, in Kahn, 32, 212. Taylor supports this by stating that "the postindustrial United States will have achieved zero population growth, if not decline, . . .[in] the early years of the new century. . . ." Taylor, A World 2010, 32. Historian Felipe Fernandez-Armesto states "The most reliable population check will be economic change. Birth rates fall as incomes rise: as manpower becomes less valuable in mechanizing societies, people produce fewer babies. First Latin America, then the Middle East and Africa north of the Sahara will follow the industrialized world into the prosperity of high production per unit of energy and of time . . . the baby boom will sag." Fernandez-Armesto, 723.

[20]Taylor, A World 2010, 6.

[21]This trend is outlined in Taylor, A World 2010, 6, 37-47. "The United States--a 20th century superpower that formerly dealt from a position of strength in political, economic, and military affairs--increasingly in the 21st century will be unable or unwilling to use this strength adversarially, short of war, as the lesser countries enter a new economic order for the redistribution of wealth and its adjunct, power. Taylor, A World 2010, 40. Norman MacRae, deputy editor of the Economist, portrays this diffusion of power as "[t]he Retreat from Governments . . . [and] processes of decentralization and choice." Norman MacRae, The 2025 Report: A Concise History of the Future, 1975-2025, (New York: MacMillian Publishing Company, 1984), 125. Stephen M. Walt (currently Professor of Political Science at the University of Chicago, and former Resident Associate at the Carnegie Endowment for International Peace and Guest Scholar at the Brookings Institution) states "[p]erhaps the safest prediction one can make about the future international system is that it will be multipolar. Although some writers regard the present international system as 'unipolar,' with the United States as the sole surviving superpower, this condition is

unlikely to endure for long. The decline of US military power and the reemergence of other power centers will almost certainly create a situation where the US is one of several great powers (even if it remains primus inter pares for some time)." Stephen M. Walt, "Coalitions," in 2015: Power and Progress, ed., Patrick M. Cronin, (Washington, DC: Institute for National Strategic Studies, National Defense University, July 1996), 106.

[22]Taylor, A World 2010, 7, 37-41,44. McRae talks about this phenomenon in terms of the internationalism of the world economy. He calls it "the single greatest change in the world economy . . . [and] that economic take-off is achieved much more favorably than in the past." McRae, 141-143.

[23]"This growing, collective organism, no longer strongly tethered to the nation-state, represents a crucial element in tomorrow's global system." Toffler, 244. Multinational Corporations (MNCs) "will continue to grow in size . . .[t]his has critical bearing on the power of the nation-state, since in 1992 the worlds 44 largest MNCs were among the 100 largest economic units and produced almost 10 percent of the world's gross product. MNCs will grow not only in size but in power, particularly as governments downsize." "Appendix B," Alternative Futures for 2025, in 2025, available: http://www.au.af.mil/au/2025/monographs/A-F/a-f-b.htm (Internet). Further, MNC size and clout is reflected in the fact that "an estimated one-quarter of all world trade now consists of sales between subsidiaries of the same firm." Toffler, 244.

[24]"We are speeding toward a totally different structure of power that will . . . sharply [divide the world] into three contrasting and competing civilizations--the first still symbolized by the hoe; the second by the assembly line; and the third by the computer. . . . In this trisected world the First Wave sector supplies agricultural and mineral resources, the Second Wave sector provides cheap labor and does the mass production, and a rapidly expanding Third Wave sector rises to dominance based on new ways in which it creates and exploits knowledge." Toffler, 21-22. Taylor divides the world into five sectors: Postindustrial, Advanced Industrial, Transitioning Industrial, Industrial, and Preindustrial. Taylor, A World 2010, 15-16. For this study, and based on the body of knowledge, not limited to the two references cited here, Post and Advanced Industrial have been grouped into the Third Wave, Transitioning and Industrial fall into the Second Wave, and Preindustrial constitutes the First Wave. The National Defense University's Strategic Assessment 1995 characterizes this trisecting of the world along both economic and political lines. "The emerging lines of division appear to be the following: . . . market democracies . . . transitional states . . [and] troubled states. . . ." "The Strategic Setting," in Strategic Assessment 1995: U.S. Security Challenges in Transition, ed. Patrick L. Clawson, (Washington, DC: National Defense University, 1995), 2.

[25]Energy is the critical resource, after drinking water and food. Analysis of this issue is critical to depiction of a future world environment. The trend extrapolated here is very positive, and contrary to that of many analysts. CONCLUSION: Fossil fuels are the most convenient forms of energy currently or envisioned to be available. This fact alone suggests a continued reliance on and increased demand for fossil fuels, particularly oil. Supply may swing between sufficient and momentarily constrained, due to current demand and price driving the requirement for exploration and exploitation of new sources of supply. Development of alternative energy sources will continue, but it is highly unlikely that they will supplant fossil fuels. RATIONALE: Patrick L. Clawson (former editor of Orbis, former senior World Bank economist, and currently a senior fellow at the National Defense University's Institute for National Strategic Studies) counsels caution in forecasting a resource crisis with two examples. In 1975 analysts projected total consumption of energy, minerals and food, and in 1955 there was concern about US dependence on foreign sources of strategic minerals. In neither case, over a period of 20 and 40 years respectively, were these concerns realized. Patrick L. Clawson, "Environment," in 2015: Power and Progress, ed., Patrick M. Cronin, (Washington, DC: Institute for National Strategic Studies, National Defense University, July 1996), 69. This same caution should be applied to any forecast of energy shortfalls in the next 20 to 40 years, and that caution is applied to the supporting analysis of this trend. ANALYSIS: RELIANCE--Taylor contends that fossil fuel consumption and demand will increase; Taylor, A World 2010, 8. Daniel Yergin describes the world's, this "Hydrocarbon Society's," utter dependence on petroleum based products in almost every aspect of our lives--from energy, to the clothes we wear, to the body panels of our cars, to the chemicals used to grow our food. Daniel Yergin, The Prize: The Epic Quest for Oil, Money, and Power, (New York: Simon and Schuster, 1991), 14-15. 2025 further reinforces the assertion that demand will increase, citing a 30 percent increase. "Appendix B," Alternative Futures for 2025, in 2025, available: http://www.au.af.mil/au/2025/monographs/A-F/a-f-b.htm (Internet). Hamish McRae confirms demand increases because "the world is overwhelmingly dependent on fossil fuels," and other alternative energy sources, such as nuclear and hydroelectric power have been "disappointing" and/or limited in ease of application. McRae, 127-130. Petersen cites the recent global economic slump as a reason for the recent downturn in the price and demand for oil, in Petersen, p. 146. Taken on the whole, given oil's ease of use and applicability to almost any energy producing or consuming activity and the increase in the number of nations joining the industrialized world, demand and consumption of fossil fuels, and oil in particular, will continue to increase. SUPPLY--Taylor contends that petroleum resources will continue to decrease; Taylor, A World 2010, 8. Petersen states that there "are plenty of oil reserves to meet the conventionally assumed growth in demand well into the next century," but then goes on to say only the Gulf States "have the scope for expansion." A danger to supply also lies in the possible instability of Russia, as the world's largest oil producer. Petersen, 145. McRae postulates an energy shock in about

2015, with East Asia being the most vulnerable due to its lack of regional supply and fast growth; McRae, 131. Taking the contrary view, Herman Kahn contends that resources are constantly "renewed" when demand is high enough--demand (requirements and a potential profit) drives exploration. He states "the proven reserves of . . . major fossil fuels . . . alone could provide the world's total energy requirements for about 100 years [2076] . . . and only one-fifth of the estimated potential resources could provide for more than 200 years of the projected energy needs." Further, there is a "tendency [when talking about resources] to confuse temporary shortages with permanent ones." Kahn, 63, 93. Kahn's premise is supported by the current energy situation. Two examples of untapped petroleum resources are the potential reserves located in the Spratly Islands of the South China Sea and a rumored "Elephant" (a mega oil deposit rivaling Alaska) in the Gulf of Mexico. Yet demand has not driven exploitation of these two deposits. In the case of the Pacific region, "[t]he high cost of recovering offshore oil and gas, combined with the wide swings in world prices for oil since 1985, has slowed . . . new drillings." Central Intelligence Agency (1995), "The World," in The World Fact Book, available: http://www.odci.gov/cia/publications/95fact/zn.html (Internet). Though the short term outlook appears to be bleak given known reserves, Kahn makes a convincing and historically supported argument that known reserves have not and do not directly translate into the only reserves. Therefore, the outlook for oil supplies through 2020 is good, barring war or embargo; though supply may become constrained for short periods of time, perhaps resulting in a McRae's crisis in 2015. ALTERNATIVE SOURCES--Taylor ties alternative sources to his projected decrease in petroleum reserves, and looks to nuclear power to fill the void; Taylor, A World 2010, 8. 2025 states that further demand for alternative energy sources will increase due to increasing dependence on Mid-East oil and environmental concerns; "Appendix B," Alternative Futures for 2025, in 2025, available: http://www.au.af.mil/au/2025/monographs/A-F/a-f-b.htm (Internet). McRae finds most alternatives to be disappointing, and substitute development requires demand. "The techniques are there; the problem is . . . [their products are] . . . more expensive than what flows out of the deserts of the Middle East." McRae, 131. Kahn again strikes an optimistic cord, stating that "too many options for new [energy] supplies already exist and they will increase over time." Kahn, 83. Alternative energy sources will be developed due to long range concerns over dependence, the environment and the relative cost of fossil fuels. But it is unlikely that alternatives will overtake fossil fuels. Use of nuclear power will increase due to the willingness of many economically advanced nations (France in particular) to provide the technology free or at reduced costs to developing nations; no nation would spend money for oil, when nuclear power is "free." Technology will continue to improve and generate new alternatives, but through 2020 these alternatives will not be economically realized and petroleum will probably still be king.

[26]The basic thrust of this trend is contained in Taylor, A World 2010, 8, 52-61. He states the "[m]ost societies of the world are

benefiting economically (limited only by their ability to finance) and socially (limited only by their capability to absorb) from the almost constant flow of scientific and technological innovativeness and discovery that will emerge by the year 2010 . . . [and] will permeate extensively throughout almost all nations of the new world order." Taylor, A World 2010, 52. It is supported and expanded upon by every work used in this study. Also note that technology, as referred to here, is primarily, though not totally, related to information based or linked technology. DEVELOPMENT: The velocity of technological change is staggering. It is succinctly illustrated by the notion of change on the Worldwide Web being described as a 90 day "net year." 2025 characterizes change in information technology as "so rapid it effectively renders systems obsolete within a year or two of introduction . . . [for example] the rate of increase in the speed of the central processing unit (CPU) of personal computers has risen from doubling every two years to doubling every 18 months . . . [e]xtrapolated . . . 30 years at that rate would produce CPU speeds 1 million times faster than 1995 processors, but at the same price . . . In essence, the desktop computer of 2025 unarguably will be more powerful that today's Cray supercomputer." "Appendix B," Alternative Futures for 2025, in 2025, available: http://www.au.af.mil/au/2025/monographs/A-F/a-f-b.htm (Internet). Martin C. Libicki (a senior fellow at the Advanced Command Technologies program at the National Defense University's Institute for National Strategic Studies) illustrates this rapid change with several examples including "phone line trunk capacities have increased from 1.5 million bits per second to 155 million bits per second," in Martin C. Libicki, "Technology and Warfare" in 2015: Power and Progress, ed. Patrick M. Cronin, (Washington, DC: Institute for National Strategic Studies, National Defense University, July 1996), 120. Change is not necessarily limited to capability. The exponential increase in computer and information technology translates into rapid advances in other areas. Biotechnology's rapid advances are linked to the ability of computers to map and simulate nature. Computer modeling allows designers to complete all prototype work without building models, in Petersen, 48. Computer modeling has become so sophisticated that it became a primary justification for support of the Nuclear Test Ban Treaty--the models were so accurate that they obviated the need for actual tests. While capability may slow, cost and convenience normally continue to improve. Where change in capability may be measured in terms of scale rather than standard (aircraft engines, automobiles, trains, housing), real cost has fallen. McRae, 168. One example is "because of increased use of ceramics and plastics, one estimate says that the average life of cars will increase from 10 years to 20 years by the year 2000," in Petersen, 57. ACCESS: Information is the fuel of change and the Internet is the clearest indicator that access to information and technology is increasing. According to the Defense Department's Advanced Research Projects Agency, the Internet increases by 25% every month, in Petersen, 37. The decrease in cost caused by the changes in "scale" mentioned above also increases access. Libicki states that "[i]t would be very difficult to maintain the distinct American advantage . . . over the

next 20 years. . . . Over the next 10 years, [any "sophisticated" nation] will be able to buy or lease a wide panoply of capabilities from around the world: in GPS, surveillance, communications, direct broadcast, systems integration, Internet working, cryptography, and air-based imaging . . . [and]the costs . . . will progressively decrease," in Libicki, "Technology and Warfare," 131. Additionally, nations without previous links to space and other major information based technologies (not Japan, Singapore, Chile, etc.) are getting into the business. As one example, Thailand (not one of the Asian dragons) is studying the feasibility of launching its own communications and intelligence-gathering satellite. Spike Robinson, (1 November 1995), "Thailand Plans to Launch Spy Satellite," Military and Arms Transfer News, Issue 95/13 (on-line), available: http://csf.colorado.edu/dfax/matn/matn9513.htm (Internet). The trend towards unimpeded access to high technology and space based resources is further reinforced by several other indicators. There are currently 14 government satellite imagery systems with products for sale, providing weather and visual imagery at costs between $113 and $5000. Resolution of commercial visual products runs from 10 to 2 meters. "The TELSAT Guide for Satellite Imagery" (27 December 1996) (on-line), available: http://www.belspo.be/tesat/sumtab/suse_pi1.htm (Internet). Additionally, commercial exploitation of space is on the move. Motorola's IRIDIUM system has a 1998 start date for commercial service. "The IRIDIUM system is a wireless personal communications network [of 66 interconnected satellites], designed to permit any type of telephone transmission--voice, data, fax, or paging--to reach its destination anywhere on earth," Iridium (26 December 1996)(on-line), available: http://www.iridium.com/ (Internet). Microsoft Chairman Bill Gates is backing a similar, but more ambitious system called Teledesic. "Scheduled to begin service in 2002, the Teledesic Network [of 840 active satellites] will provide two-way, broadband connections for applications such as voice, data, videoconferencing and high-performance Internet access." Teledesic (26 December 1996) (on-line), available: http://www.teledesic.com/ (Internet). In addition to these two systems, four other systems are under development. Lloyd Wood (26 December 1996), Lloyd's Constellations (on-line), available: http://www.ee.surrey.ac.uk/Personal/L.Wood/constellations (Internet). Additionally, GPS access will increase. GPS and GLONASS currently exist, INMARSAT's new INMARSAT-3 satellites provide navigation services to enhance GPS and GLONASS, and the European Community is trying to create GNSS, "a navigation system that is in international hands and independent of foreign military powers." Wood, available: http://www.ee.surrey.ac.uk/Personal/L.Wood/constellations (Internet).

[27]Taylor, A World 2010, 7, 41-43.

[28]Petersen advances a wild card scenario where Hong Kong "swallows" China, due to the economic and political power of Hong Kong and the five current special economic zones "become the super nova . . . gobbling the Chinese Communist dinosaur," Petersen, 307-309. This assertion is supported by the author's own observations based on living

seven years in Asia, and having friends in the Hong Kong expatriate and Chinese business community. Additionally, the Chinese central government is finding the economic zones in Shenzhen and Fukien more an more independent as their wealth increases dramatically relative to the rest of China. The Tofflers lend support to this conclusion as well. They state that these special economic zones are already "thumbing their collective nose at . . . Beijing's central government . . ." Toffler, 214. Historian Felipe Fernandez-Armesto takes a decidedly contrary position, stating that though "The day of democracy looks as if it has arrived, . . . it will prove to be a false dawn or a short spell of wintry light." Fernandez-Armesto, 726. The trend supports the more optimistic school of thought. Economic and education improvements have produced societies more aware and more interested in controlling their own destinies. This is not to say that the result will always be a liberal democracy created in the image of the US, but that the experience of Korea foreshadows future developments elsewhere, China included.

[29]Dr. Brian R. Sullivan (National Defense University social science analyst and former Yale military history professor) describes this development as follows, "As nuclear and missile technologies become more accessible and an increasing number of states acquire high levels of wealth, the proliferation of nuclear weapons is sure to increase the number of nuclear powers. By 2015, 20 to 30 countries may possess nuclear arsenals. However, nuclear proliferation will severely limit their freedom to wage war. This will be perhaps the most significant change in the international system 20 years hence. When midranking and even small states (not to be confused with weak, poor states) possess nuclear arms, the use of military power, even by great powers against small powers will be severely circumscribed." Brian R. Sullivan, "A World of Great Powers, "in 2015: Power and Progress, ed. Patrick M. Cronin, (Washington, DC: Institute for National Strategic Studies, National Defense University, July 1996), 5.

[30]Bruce Russett of Yale University notes that "Over the past 50 years, pairs of democratic states have been only one-eighth as likely as other kinds of states to threaten to use force against one another . . . the Soviet Union invaded its ally Hungary in 1956. [And we may add Communist China attacked Communist Vietnam in 1978]. There are no such examples of war between democracies however." Bruce Russett, "Letters," The Economist, 29 April-5 May 1995, 8, in Raju G. C. Thomas, India's Security Environment: Towards the Year 2000, (Carlisle Barracks: US Army War College, Strategic Studies Institute, 29 July 1996), 29. The National Defense University's Strategic Assessment 1995 notes that "The most likely conflicts in the emerging world systems are the least dangerous to the US [and goes on to state that] . . . a clash among great powers (directly or through proxies) would be the greatest threat to the US, but it is the least likely scenario . . . [but, civil war] is likely to be the most prevalent but least threatening to US interests." "The Strategic Setting," in Strategic Assessment 1995, 4. The trend is toward increasing civil war. "According to two independent studies,

civil wars constituted 14 of 16 wars raging in 1990 . . .[which] accounted for 2.5 million deaths." Taking a longer view, civil war has shown a 200% increase over the last 26 years, while interstate war has shown a similar drop over the same period. Kurt A. Stonerock, "Regional Impacts of Civil War," in Global Security Concerns: Anticipating the Twenty-First Century, ed. Karl P. Magyar, (Maxwell AFB, AL: Air University Press, 1996), 260-261. Military scholar Martin van Creveld characterizes this trend towards civil war and low intensity conflict as the transformation of war; this trend points the way to future war forms. van Creveld, The Transformation of War, 20-25. The causes of these present conflicts and those to come center around tribal, ethnic, religious, and colonial conflicts. They involve the settlement of old scores, some, as with Bosnia, hundreds of years old. They involve the redesigning of artificial borders, imposed by colonial masters in the late 1800's and early 1900's, by tribal, ethnic and religious factions. These civil wars also involve the revolt of peoples held down by others or who find themselves in untenable situations, like the poor in Zaire, Nigeria, Mozambique, Sudan, Mauritania, Peru, Bolivia, and perhaps even Brazil. Finally, these wars may involve a struggle between a legitimate government and a non-state actor such as a drug cartel in South America or parts of Africa. In some regions it is doubtful that these wars will be particularly spectacular, or even attract much attention from the outside world--the Moroccans and the POLISARIO fought for 15 years in the former Spanish Sahara without much notice. In those cases conflict may end with exhaustion or continue for decades as a smoldering cancer that kills 10s and 20s daily or monthly for years at a time.

[31]"[T]here remains a good chance that because of the increased competition for scarce resources needed by new and old industrial states, virtually all but the poorest nations will invest in a conventional military establishment, at least commensurate to their ability to pay. Others, in addition, likely will invest in a very modest nuclear capability." Taylor, A World 2010, 63; trend description and analysis 8, 63-73. This trend is selected not because of Taylor's cause--the increased competition for scarce resources needed by new and old industrial states--is necessarily correct (McRae and Kahn dispute the notion of resource shortages), but due to the change from a bipolar to a multipolar world. The US and Russia are no longer in a position to spread their umbrella over others. Nations will see themselves in a situation like pre-WW I Europe where they must arm to effect a balance of power in their region. The build down of western nations' militaries as contrasted by an increase in Asia is outlined by Michael T. Klare, Director of the Five College Program in Peace and World Security Studies. He states that while "most of the NATO and former Warsaw Pact countries are reducing their military expenditures . . . many East Asian countries are raising their military outlays--in some cases by a significant percentage . . . [and] it is the emphasis on technology imports that sets the East Asian arms races apart from those in the Third World. Michael T. Klare, "The Next Great Arms Race," Foreign Affairs 72, no. 3 (Summer 1993): 136-137.

[32]Regional competitors will increase in capability and sophistication. To suggest otherwise is to ignore several clear indicators. One is Iran's current build up and potential to become "the regional superpower, or minisuperpower, to replace Iraq in the Persian Gulf, Iran will realize that potential if left undisturbed." Major General Uri Sagi, Director of Israeli Military Intelligence quoted by Michael Eisenstadt, "Deja Vu All Over Again? An Assessment of Iran's Military Buildup," in Iran's Strategic Intentions and Capabilities, ed. Patrick Clawson, (Washington, DC: Institute for National Strategic Studies, National Defense University, April 1994). 93. Another indicator is the implications of an extremely thoughtful assessment of the US's strategic vulnerabilities entitled War in the Gulf: Lessons for the Third World by Indian Army Brigadier General V. K. Nair. Nair dissects the strengths and weaknesses of the American way of war, and identifies countermeasures an aspiring regional power might employ to succeed or mitigate US strengths. V. K. Nair, War in the Gulf: Lessons for the Third World, (New Delhi: Lancer International, 1991), 217-231. Additionally, China "has recently increased its military spending and appears to be placing greater emphasis on preparation for regional conflict . . . [and] China's Central Military Commission directed the PLA to shift its primary strategic focus from preparation for all-out war with the USSR to preparation for regional conflicts on China's periphery." Klare, 141-143.

[33]The United State's Cold War peer competitor, the USSR, no longer exists. Russia, the largest part of the former USSR, has a military in a state of severe military unpreparedness as evidenced by its inability to put down the rebellion, or even function effectively, in Chechnya. China was the other major threat contemplated during the Cold War. With its huge population, economy and massive army, China may soon develop into a peer competitor. In the near term, a military with "a basic deterrent capability, with an ability to exercise its military influence in ways it deems conducive to its interests . . . may be sufficient . . . even China's 'junkyard army' can create difficulties and draw the United States into areas of high tension and potential conflict [as saber rattling against Taiwan in early 1996 illustrates] . . . [but China will] not [reach an RMA capability] in the next 5-10 years." Bates Gill and Lonnie Henley, China and the Revolution in Military Affairs, (Carlisle Barracks: US Army War College, Strategic Studies Institute, 20 June 1996), 34-35. Other regional powers, as discussed in note 31 above, will increase in sophistication. If smart about their method of operation, these regional hegemons may be able to counter US interests in their region, particularly when challenging non-vital interests.

[34]Nuclear weapons proliferation is caused by perceived need, the threat by or possession of them by a neighbor, and desire for the international status they carry. Further, by 2010, between 18 and 24 countries may have developed a nuclear weapon capability ranging from very modest to substantial. Taylor, A World 2010, 64. Major Robert H. Hendricks offers further substantiation of an increase in nuclear

proliferation, identifying ten states (beyond the five acknowledged members of the "nuclear club") that either possess or are developing nuclear weapons now. Robert H. Hendricks, "Nuclear Conflict and Nonproliferation Issues in the Twenty-First Century," in Global Security Concerns: Anticipating the Twenty-First Century, ed. Karl P. Magyar, (Maxwell AFB, AL: Air University Press, 1996), 202-203. Secretary of Defense William J. Perry's monograph Proliferation: Threat and Response identifies seven potential proliferation risks, in addition to the five current acknowledged holders of nuclear weapons. William J. Perry, Proliferation: Threat and Response, (Washington, DC: Office of the Secretary of Defense, April 1996). Finally, the Tofflers characterize the potential for proliferation as follows: "even as Third Wave Armies hurry to develop damage-limiting precision weapons and casualty-limiting nonlethal weapons, poorer countries like North Korea, still on the road to Second Wave industrial development, are racing to build, buy, borrow, or burgle the most indiscriminate agents of mass lethality ever created . . . we are reminded that the rise of a new war-form in no way precludes the use of earlier war-forms--including their most virulent weapons." Toffler, 192.

[35]For a brief, but articulate survey of the challenges of the internationalism of organized crime, see Brian Sullivan (May 1995), International Organized Crime: A Growing National Security Threat (on-line), available: http://www.ndu.edu/ndu/inss/strforum/forum74.htm (Internet). Globalization of drug trafficking and development of international criminal syndicates are identified as a growing priority for the US. "Context," in Strategic Assessment 1996: Elements of U.S. Power, ed. Patrick Clawson, (Washington, DC: National Defense University, 1996), 4, 8, 10.

[36]Not all regions and nations impact the world or US interests equally. The recent Center for Strategic and International Studies (CSIS) work Foreign Policy into the 21st Century does not even address Latin America as a challenge in the next century. See Douglas Johnston, ed., Foreign Policy into the 21st Century: The U.S. Leadership Challenge (Washington, DC: The Center for Strategic and International Studies, 1996).

[37]Toffler, 21-22; and Taylor, A World 2010, 15-16.

[38]William J. Holstein, "An Economy to Fear? Reports of China's Emergence as the New Japan are Greatly Exaggerated," US News and World Report, 23 December 1996, 43-44.

[39]Recent events in Rwanda and Burundi illustrate the Third Wave's reluctance to involve themselves in First Wave conflicts. The genocide and anarchy in these two nations resulted in little concerted effort by any party, regional or international, to become decisively engaged in solving the underlying causes of the conflict. However, once Zaire, with its rich mineral wealth and agricultural potential, became involved in the strife, and potentially a casualty as well, regional engagement

and international interest stepped up substantially. See Clawson, Strategic Assessment 1995, 4; and David Passage, "Africa: New Realities and US Policy," Impressions of and assessment by the former US ambassador to Ghana on present day Africa and US policy, 30 November 1995.

[40]Kaplan, Ends of the Earth, 130; idem, Balkan Ghosts; and "Europe," Strategic Assessment 1995: U.S. Security Challenges in Transition, ed. Patrick Clawson, (Washington, DC: National Defense University, 1995), 39.

[41]As discussed in the section of trends, economic and education improvements have produced societies more aware and more interested in controlling their own destinies. More representative forms of government and increases in basic freedoms will follow.

[42]Huntington, Clash of Civilizations, 183-186.

[43]Hong Kong's survival is advanced positively by Petersen, 307-309. McRae goes on to state that there is "little linkage" between democracy and economic success. McRae, 242. It should also be noted that the present democratic institutions found in Hong Kong are very recent additions, within the last five years. China rightfully points out that Hong Kong was a success for the bulk of its 156 years under British rule without these democratic traditions. However, a free market economy and broad personal freedoms were prevalent. The trick is for China to strike the proper balance.

[44]McRae, 19.

[45]Ibid., 19, 211-213.

[46]McRae states:

> "Western Europe needs successful economies to its east . . . with which it can trade. . . . Writing in 1993, with the region's economy in a state of collapse, there is great temptation to conclude that the collapse will continue. That is wrong. The technical skills of Russia remain as strong as ever . . . The human resources are enormous . . . A sensible guess--it can be no more--is that the period between 2010 and 2020 will see Russia again become an economic giant."

Ibid., 242-243.

[47]Hamish McRae characterizes Europe as an association. Ibid., 225. The National Defense University's Strategic Assessment 1995 cites many analysts who are "relatively pessimistic. They point to the difficulties in achieving European unity . . . continuing economic problems in Western Europe . . . lack of leadership within Europe itself and fear the US is no longer as interested or willing to lead the Alliance [NATO]." "Europe," in Strategic Assessment 1995, 32. Strategic Assessment 1995 is more positive on Europe's chances for unity

than the analysts cited above; however, it is the judgment of the author that it is unlikely that Europe can overcome several hundred years of history--cultural conflict, mistrust, competition, and war--in the 70 years from 1945 to 2015. Additionally, the Maastricht Treaty sets several criteria for membership in the European Monetary Union (a first step towards dissolving national sovereignty, and creating a true European Union), including fiscal deficit of less than 3% of GDP. Germany's current deficit is 4% of GDP and Germany is the largest European economy. Bank of Montreal (2 February 1997), "Europe," in "Outlook 1997" (on-line), available: http://www.bmo.com/economic/eur97.htm (Internet). Germany is not the only country having economic troubles which indicate slow progress, at best, towards any real economic union under the Maastricht accords. The European Commission has predicted that growth will fall from 2.5% to 1.5%, and that Britain, Belgium, Italy, Denmark, Greece, Spain, and Portugal will fail to meet deficit criteria, "EU Nations Grappling With Economic Gloom" (2 February 1997), The Hindu On Line (on-line), available: http://www.webpage.com/hindu/960525/1906b.htm (Internet). Unemployment is in the double digits in most European nations, with Germany suffering at "a level last seen in 1933, the year Hitler took power . . . 12.2 percent. . . ." "Germany's jobless rate rises sharply," The Financial Times (London), in Kansas City Star, 7 February 1997, sec. 1A, p. 2.

[48]See McRae, 70; and Raju Thomas, 6. Additionally, recent articles in International Business, Business Horizons, Global Finance, Forbes, and Fortune, assess India as a good long term investment. Many factors are cited including: joint venture partnerships now allow foreign majority ownership; a substantial decrease in import duties; taxes are lower; a substantial English speaking, well educated middle class; and the long term stability of an established democracy. Jim Dow, "Rough Passage to India," International Business, January 1994, 50-52; Marita Van Oldenborough, "India: Better Than China?" International Business, January 1995, 48-51; Philip Banks and Ganesh Natarajan, "India: The New Asian Tiger?" Business Horizons, May/June 1995, 47-50; Dave Lindorff, "India vs. China? For Now, investors' choice is India," Global Finance, January 1995, 46-49; James W. Michaels, "The Elephant Stirs," Forbes, 24 April 1995, 158-159; and "India or China: How to Choose," Fortune, 5 September 1994, 102.

[49]"Greater Middle East," in Strategic Assessment 1995: U.S. Security Challenges in Transition, ed. Patrick Clawson, (Washington, DC: Institute for National Strategic Studies, National Defense University, 1995), 73-74; and Stephen C. Pelletiere (1 February 1996), "The Middle East," in World View: The 1996 Strategic Assessment From the Strategic Studies Institute, ed. Earl H. Tilford, Jr., Carlisle Barracks: US Army War College, Strategic Studies Institute (on-line), available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p6.htm (Internet).

[50]The current US position that liberal, representative democracy is the only path to stability is misguided. There are many effective,

culturally based representative governments that provide substantial personal freedom and economic prosperity. Indeed, Hong Kong's economic fire was sparked decades prior to the implementation of its recent representative government. As McRae says about Europe's relations with the east "[We need nations] with which [we] can trade. [We] do not need identikit parliamentary democracies. . . ." McRae, 242. Additionally Samuel P. Huntington states "cultural and civilizational diversity challenges the Western and particularly American belief . . . that people throughout the world should embrace Western values, institutions, and culture." Huntington, Clash of Civilizations, 310. A theme in Huntington's book is that the US would be well served by ending its missionary like approach to that other nations adhere to the US liberal-democratic tradition, regardless of their national or cultural history and traditions.

[51]Strategic Assessment 1995 identifies this trend as "Governments are giving more weight to economic interests relative to traditional national security interests." "Strategic Setting," in Strategic Assessment 1995, 9.

[52]"But while the world of 2015 may witness great-power rivalry on a global scale rather than merely on a continental scale, such a struggle likely would focus on Asia." Sullivan, "A World of Great Powers," in 2015, 4. Historian Fernandez-Armesto describes the end of this millennium as "THE PACIFIC CHALLENGE, [where] we are seen to be heading back to a world balance similar to that of a thousand years ago, when the initiative in human affairs belonged on the Pacific coast." Fernandez-Armesto, 14.

[53]"China is not a villain. It is not a renegade country like Iraq or Libya, but rather an ambitious nation that is becoming the behemoth in the neighborhood . . . [as Lee Kuan Yew said recently] 'It's not possible to pretend that this is just another big player. This is the biggest player in the history of man.'" Nicholas D. Kristof, "The Rise of China," Foreign Affairs 72, no. 5 (November/December 1993): 74.

[54]Xu Xiaojun, PLA Colonel and research fellow in the Department of Strategic Studies, Academy of Military Science of China, states that "The expansion of the concept of security [for China] has been accompanied by a rise in the priority accorded economic factors in Asia-Pacific affairs . . . . China's central task is to go all out to bolster its economy . . . China will continue to pursue its central task of economic development . . . and opening-up . . . unless China's very survival is threatened, this principle will remain unshakable." In Xu Xiaojun, "China's Grand Strategy," in Asia in the 21st Century: Evolving Strategic Priorities, ed. Michael D. Bellows, (Washington, DC: National University Press. 1994), 25, 37, 41.

[55]Petersen, 307-309

[56]Xu Xiaojun, 32-33; Sullivan, "A World of Great Powers," in 2015, 33-39; John King Fairbank, The Great Chinese Revolution, (New York: Harper and Row, 1987), x; and Kristof, 70.

[57]Sullivan, "World of Great Powers," in 2015, 35; Kristof, 65-70; and Thomas L. Wilborn (1 February 1996), "Asia-Pacific Region," in, World View: The 1996 Strategic Assessment from the Strategic Studies Institute, ed. Earl H. Tilford, Jr., Carlisle Barracks: Strategic Studies Institute, US Army War College (on-line), available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p8.htm (Internet).

[58]Stephen J. Blank (1 February 1996), "Russia and the Commonwealth of Independent States," in World View: The 1996 Strategic Assessment from the Strategic Studies Institute, ed. Earl H. Tilford, Jr., Carlisle Barracks: Strategic Studies Institute, US Army War College (on-line), available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p2.htm (Internet); and Sullivan, "World of Great Powers," in 2015, 16.

[59]See note 47, and William T. Johnsen and Thomas-Durell Young (1 February 1997), "Western Europe: 1996-2006, in World View: The 1996 Strategic Assessment from the Strategic Studies Institute, ed. Earl H. Tilford, Jr., Carlisle Barracks: Strategic Studies Institute, US Army War College (on-line), available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p4.htm (Internet).

[60]Johnsen, "Western Europe," available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p4.htm (Internet); "Europe," in Strategic Assessment 1995, 38-39; Robert D. Kaplan, Balkan Ghosts, (New York: Vintage Departures, 1993), 48; and Huntington, Clash of Civilizations, 126-127, 157-163.

[61]"There is no overpowering threat that will create enduring alliances the way the Soviet threat brought NATO into being . . . coalitions will shift from case to case. . . ." "The Strategic Setting," in Strategic Assessment 1995, 13. "[F]uture coalitions are likely to be more flexible and short-lived . . ." Walt, "Coalitions," in 2015, 109.

[62]Taylor, A World 2010, 8, 63-73; and Klare, 136-137.

[63]"Concerns about the economic foundations of national power are increasingly voiced in the industrial nations." "Strategic Setting," in Strategic Assessment 1995, 9.

[64]Michael G. Vickers, Warfare in 2020: A Primer, (Washington, DC: Center for Strategic and Budgetary Assessments, October 1996), ii, 15.

[65]Fairbanks, et al., "Appendix D: The Middle East," 92-94; Stephen C. Pelletiere, "Middle East," in World View: The 1997 Strategic

Assessment From the Strategic Studies Institute, ed. Earl H. Tilford, Jr., (Carlisle Barracks: US Army War College, Strategic Studies Institute, 3 February 1997), 64; "Greater Middle East," in Strategic Assessment 1995: U.S. Security Challenges in Transition, ed. Patrick Clawson, (Washington, DC: Institute for National Strategic Studies, National Defense University, 1995), 71-76; Huntington, Clash of Civilizations, 115-121, 212-213; and Kaplan, Ends of the Earth, 109-112, 120-123.

[66]Nations such as Iran, Libya, and Iraq, possess a strategic resource (oil) and have authoritarian governments, limited world economic and political interconnectivity, and designs on regional power. Due to their existing pariah status, they have little to lose in confronting US interests, and the general wherewithal to acquire forces capable of doing so. One scenario for acquisition of assets is discussed in Patrick L. Clawson, "Demographic Stresses," in 2015: Power and Progress, ed. Patrick M. Cronin, (Washington, DC: NDU Press, July 1996), 73.

[67]"Strategic Setting," in Strategic Assessment 1995, 11.

[68]The purpose of a balance of power system as described in Henry Kissinger, Diplomacy, (New York: Simon and Schuster, 1994), 21. Dr. Kissinger also states that "the balance of power system did not purport to avoid crises or even wars. When working properly, it was meant to limit both the ability of states to dominate others and the scope of conflicts. Its goal was not peace so much as stability and moderation." Ibid., 21. The National Defense University's Brian Sullivan makes the analogy, stating "Another way to envision the world of 2015 is to conceive of it as similar to the European system of 1648 to 1945, but projected on global scale . . . The disintegration of the USSR and American unwillingness to exercise world hegemony has created something of a new vacuum. This will be filled partly by the handful of great powers that have emerged or re-emerged during the final decades of the present century or that will do so in the first few decades of the 21st century." Sullivan, "A World of Great Powers," in 2015, 4.

[69]"Canada's economy is hitched to the US wagon . . . [t]he US belt along the border with Mexico will continue to grow rapidly . . . with the border--from an economic point of view--virtually disappearing . . . improved living standards [in Mexico are such that] the pressure to emigrate to the US will have disappeared. . . ." McRae, 217-218.

[70]Ibid., 218-219.

[71]Chile is working to join NAFTA as this paper is being published. This linking of the entire hemisphere will strengthen all the Americas in their dealings with the rest of the world, and in particular the Pacific Rim.

[72]McRae, 218.

[73]Earl H. Tilford, Jr. (Director of Research at the Army War College's Strategic Studies Institute) states "no matter what happens politically or economically, Russia will likely pursue policies and objectives which conflict with those of the United States and the European democracies." Earl H. Tilford, Jr. (1 February 1996), "Introduction," in World View: The 1996 Strategic Assessment from the Strategic Studies Institute, ed. Earl H. Tilford, Jr., Carlisle Barracks: US Army War College, Strategic Studies Institute (on-line), available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96ss.htm (Internet). Stephen J. Blank (also of the Army War College) states that "Russia may not be able to articulate a viable security and economic policy for Asia." Stephen J. Blank (1 February 1996), "Russian and the Commonwealth of Independent States," in World View: The 1996 Strategic Assessment from the Strategic Studies Institute, ed. Earl H. Tilford, Jr., Carlisle Barracks: US Army War College, Strategic Studies Institute (on-line), available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p2.htm (Internet). They may not, but Russia's economic recovery, like most of the world in the part of the next century, depends on Asia. Given Russia's economic problems, increasing trade with China, resource deposits in Siberia, and the economic potential of Asia, it is highly likely that these "conflicting policies" will extend to Asia.

[74]"[I]t would require all the investment capital of the entire human race, spent over a generation on Russia alone, to raise it to the economic level of Western Europe. Obviously, no such miracle is going to happen, and Russia is going to remain backward compared to Western Europe for a long time to come. One can assume that is would take until 2035 [for Russia to achieve economic parity]." Sullivan, "A World of Great Powers," in 2015, 16.

[75]Soviet science and strategists embraced the concept of a technological revolution in military affairs in the mid 1980s; the overextended Soviet system could not support its development. Jacob W. Kipp, The Russian Military and The Revolution in Military Affairs: A Case of the Oracle of Delphi or Cassandra? (Ft. Leavenworth, KS: Foreign Military Studies Office, June 1995), 6-7.

[76]For a discussion of alternative paths for Russia to 2015, see Sullivan, "A World of Great Powers," in 2015, 15-20.

[77]Jacob Kipp reviews the concerns of General (ret.) M. A. Gareev (former Soviet/Russian Army). Gareev is quoted:

> "The reality is such that in this world, as in the past, they respect only those states that are powerful in an economic and military sense. Why does the entire world take into account the USA and why do its interests extend throughout the entire world and why is no other government able to act in a similar fashion? This cannot be explained by the qualities or desires of the leaders of these countries but by only one evident circumstance: The USA is the most powerful nation in an economic and military sense. And all countries

have to take this into account, and of course, to draw the necessary conclusions for themselves."
M. A. Gareev, in Kipp, 34.

[78]Blank, "Russian and the Commonwealth of Independent States," available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p2.htm (Internet).

[79]McRae, 242-243.

[80]Sergei E. Blagovolin, "Some Aspects of Russian Strategy in the Asia-Pacific Region," in Asia in the 21st Century, ed. Michael D. Bellows, (Washington, DC: NDU Press, 1994), 49-50.

[81]"This region can be divided into north and south . . ." Stephen J. Blank (1 February 1996), "Central and Eastern Europe," in World View: The 1996 Strategic Assessment from the Strategic Studies Institute, ed. Earl H. Tilford, Jr., Carlisle Barracks: US Army War College, Strategic Studies Institute (on-line), available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p3.htm (Internet).

[82]"Progress on 'deepening' the EU will continue to slow . . . Massive refugee flows stemming from conflict . . . may overcome Western European social systems . . . There will be increasing intolerance to migration and non-European ethnic communities . . . Progress on NATO enlargement will slow. . . ." Johnsen, "Western Europe," available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p4.htm (Internet).

[83]"There remains the question of the Balkans. The chilling lesson of the Yugoslav civil war is that history repeats itself . . . conditions for these countries to live together in reasonable harmony will not exist for the foreseeable future," McRae, 243. For a thorough and chilling assessment of this region see Robert D. Kaplan's Balkan Ghosts, (previously cited).

[84]European political, economic and monetary integration continue, albeit at a cautious pace and along divergent tracks . . ." Johnsen, "Western Europe," available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p4.htm (Internet). European unity is a noble goal, but one that probably will take close to a century to achieve (1945-2045). The legacy of the 300 years of the balance of power relationship in Europe and the history of war and distrust will take more than 50 years to overcome. In addition to the historical and cultural obstacles to unity, there is another: the economic obstacle. German and French social programs have adversely impacted their economies to the point where their goal of a single European currency may not be realized for 10 years.

[85]See note 47; "Europe," in Strategic Assessment 1995, 32; and Johnsen, "Western Europe," available: http://carlisle-www.army.mil/usassi/ssipubs/ pubs96/wdvu96/wdvu96p4.htm (Internet).

[86]"Challenges to existing regimes are likely to keep the area volatile and unpredictable . . ." "Greater Middle East," in Strategic Assessment 1995, 72; and Huntington, Clash of Civilizations, 114-115.

[87]Fairbanks, et al., "Appendix D: The Middle East," in Foreign Affairs into the 21st Century, 96-97.

[88]"The economic fortunes of the region are closely linked to the state of the world oil market . . . Middle East economies have done poorly in the last decade. governments in most countries have fed unrealistic popular expectations about their ability to continue high expenditures and low taxation. . . ;" "Greater Middle East," in Strategic Assessment 1995, 73-74.

[89]"oil producing nations will not be able to achieve the level of per capita income that they enjoyed [previously] . . . ;" ibid., 74.

[90]Iran's military modernization program includes WMD and missile development, and appears to include development of systems essential to countering US strengths and deployment--naval subsurface and mine capabilities, air defense, missile, and air systems. The Military Balance 1995/96, (London: Oxford University Press, for The International Institute for Strategic Studies, 1996), 126; Patrick Clawson, "Introduction," in Iran's Strategic Intentions and Capabilities, ed. Patrick Clawson, (Washington, DC: Institute for National Strategic Studies, National Defense University, April 1994), 2-3; Shahram Chubin, "Iran's Strategic Aims and Constraints," in Iran's Strategic Intentions and Capabilities, ed. Patrick Clawson, (Washington, DC: Institute for National Strategic Studies, National Defense University, April 1994), 70-73; and Ahmed Hashim, "Iran's Military Situation," in Iran's Strategic Intentions and Capabilities, ed. Patrick Clawson, (Washington, DC: Institute for National Strategic Studies, National Defense University, April 1994), 187-190, 212, 213. "There are elements of [Iran's weapons] program that are worrisome: the coastal based antiship missiles, the Scud-B's and C's, and possible soon the longer range Ro-Dong, the mines, the submarines . . . These could complicate, delay and impede US access to the region. . . . Such concerns are prudent . . ." Chubin, 74, 187.

[91]Iran's near term potential as a regional hegemon is limited. However, as they increase their purchase of more modern systems (recent purchase of 70 Polish T72s, aircraft, air defense, missiles, mines, etc.), recent efforts to reorganize and improve the effectiveness of its armed forces, Hashim, 179-199. Changes in its government point to a long term turn around. Should Iraq continue to receive close scrutiny, there is a window of opportunity for Iran to gain regional hegemony. This is due to the size of its military (relative to the region), its

improved capability, its will, and its view that it is the dominant power in the Gulf. "Like its predecessor, the current government of Tehran sees the Persian Gulf as a waterway critical to its economic well-being. . . ." Ibid., 187-188. Naval missions include blocking "of sea routes." "Iran is likely to adopt a naval guerrilla strategy or what has been traditionally called une guerre de course. In Iran's case, this would be one of sea denial designed initially to prevent the deployment of hostile forces into the Persian Gulf by sealing the Straits of Hormuz . . . [and has taken steps to achieve this capability by extending] the operational radius of its naval forces into the Indian Ocean, a first line of defense of the Straits." Ibid., 189-190.

[92]Ibid., 196.

[93]As the discussion of economic trends indicates, fossil fuel demand will continue to increase, with little possibility of a viable alternate energy source being developed in the near term. Desert Storm was fought over oil--access, control, stability of supply--and until a proven reserve rivaling that of the Gulf is discovered, the US will go to war again. See Fairbanks, "Appendix D: The Middle East," in Foreign Policy into the 21st Century, 96.

[94]Iran, perceiving itself to be in a sea of enemies, seeks primarily to oppose US presence and enhance its own influence. Iran has tremendous internal economic and political problems that when coupled with the memory of the losses suffered in the last clash with Iraq really preclude another war with Iraq; see Clawson, ed., Iran's Strategic Intentions and Capabilities, 2-3, 29, 50, 70, 187. However, Iran's focus includes defense against Iraq, deterrence of US attack, domination of the Gulf, and obtaining the capability to close the Strait of Hormuz. Eisenstadt, 95.

[95]Eisenstadt, 146.

[96]"Most observers agree that Iran's policies to date have been surprisingly cautious and responsible. While Iran now has a significant presence in most the new Muslim states, it has been careful . . . keep its religious/cultural activities non-threatening." John Hannah, "Evolving Russian Attitudes Towards Iran," in Iran's Strategic Intentions and Capabilities, ed. Patrick Clawson, (Washington, DC: Institute for National Strategic Studies, National Defense University, April 1994), 57. That may be the current situation, but Russian setbacks in Chechnya, the tremendous economic potential of the region (Turkmenistan is sitting on the world's 4th largest deposit of natural gas), and Iran's limitations compared to the resource potential of the Gulf States, may embolden Iran to turn east and form a pan-Islamic union with these former Soviet states. Iran backed the opposition against Moscow during the 1992-1993 Tajikistan civil war. Ibid., 58.

[97]Fairbanks, "Appendix D: The Middle East," in Foreign Policy into the 21st Century, 92-94; Pelletiere, "Middle East," 64; "Greater Middle East," in Strategic Assessment 1995, 71-76; Huntington, Clash of Civilizations, 115-121, 212-213; and Kaplan, Ends of the Earth, 109-112, 120-123.

[98]Yoichi Funabashi, Washington bureau chief of the Asahi Shimbun, writes,

> "Asian countries are now more readily consulting each other and discussing political and security issues. They deal realistically, not ideologically . . .Asian security cannot be considered separately from the regional economy. Most Asian nations are former colonies or protectorates, and their independence was gained through economic and societal development. They have a strong tendency to think of security not simply in military terms but as a synthesis of military, economic, technological and societal development."

Yoichi Funabashi, "The Asianization of Asia," Foreign Affairs 72, no. 5 (November/December 1993): 80-81.

[99]"According to World Bank projections . . . Greater China in the year 2002 is projected to have a gross domestic product of $9.8 trillion, compared to $9.7 trillion for the United States. If these forecasts hold . . . Greater China would not just be another economic pole [the US, Japan, and Europe being the others], it would be the biggest of them all." Kristof, 61-62.

[100]China is benefiting from the economic boom in Asia, as much as any nation. Wilborn, "Asia Pacific Region," available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p8.htm (Internet). Military adventurism is counter productive to stability and hence to continued economic development. Wealth follows stability, and flees instability. Military action within a stable environment causes instability and a collapse of investment and economic growth. Examples of wealth following stability and fleeing instability are numerous and not limited to this century. Almost 2,000 years ago, the Romans brought stability and flourishing civilization to under areas under control of its legions; Macgregor, Breaking the Phalanx, 2. Today, capital is moving to India due to its democratic tradition of government, even at the expense of China. Conversely, the collapse of failed states witnesses a flight of capital. Zaire's inability to establish stability, despite its resource potential, is a clear example. For this reason, China will not want to disrupt the current "economic boom," and will most likely refrain from overt, military posturing and action with very few exceptions. Those exceptions are most likely limited to issues of Taiwan independence, unrest in Hong Kong, and disputes over the Spratly Islands once the oil wealth there can be exploited. However, in line with this reasoning, China will most likely use its economic position to improve its political position in order to assert hegemony within the Asian region.

[101]China is 91% ethnically homogeneous (9% Tibetan and non Han), The Military Balance 1995/96, (London: Oxford University Press, for The International Institute for Strategic Studies, 1996), 176. However, there are marked differences between regions that can create fault lines. The following is an admittedly simplistic overview. There are cultural and language differences both between east and west Chinese and north and south Chinese. Southern Chinese speaks Cantonese as a first language, the have a heritage of mercantilism, a sea faring tradition, and are more willing to embrace the West. East coast Chinese have a similar heritage to those of the south, though they speak Mandarin. Northern and Western Chinese have an agrarian heritage, plus a distrust of the West. Reinforcing this generalization, Xu Xiaojun cites separatist activities as "[endangering] the integrity of China's territory, upset the stability of China's bordering areas and constitute a long term threat to China's security." Xu Xiaojun, 31. The National Defense University's Strategic Assessment 1995 addresses China's diversity and instability question as follows:

> "The course of economic and political evolution in China is of concern to US policy . . . Some observers, citing a marked rise in strikes, peasant protests against government inefficiency and corruption, and urban discontent . . . judge that Beijing will not be able to both sustain economic and development and maintain a stable unitary state . . . [China currently lacks an] effective relation ship between the center and the provinces . . . [due to] two basic sources: uncertainties surrounding the leadership succession, and fissiparous pressures engendered by uneven economic development in various areas."

"Asia Pacific," Strategic Assessment 1995, 27. Additionally,

> "the loss of agricultural land, combined with an increasing concentration of wealth in the coastal cities, has put tens of millions of Chinese on the move [mostly western and northern Chinese heading east and south]. . . . Meanwhile, relations between the central government and the twenty-two provinces are deteriorating fast, with wealthy coastal areas like Guangdong holding back large revenues from Beijing . . . At the same time . . . a massive influx of Kazakh, Kyrgyz, and Uzbek visitors to Sinkiang [has led to the de facto unification of] Turkestan . . . 'We will probably see the center challenged and fractured, and China will not remain the same on the map,' Homer-Dixon [University of Toronto] says. WILL THIS BREAKUP--if it occurs--occur peacefully and gradually over years, even decades, or will it be sudden and violent? . . . THE LAST WORD on China may have appeared in a little-known monograph by a former US diplomat, Jonathan Moore: 'China may be the most dramatically unreadable harbinger of the future of our species . . . China faces massive internal displacement of people, its militarism is burgeoning . . . and a threat to its social stability exists in millions of unemployed generated by the closing of thousands of state-owned factories . . . China is assaulting the nexus head-on, trying to control the chaos it is generating.'"

Kaplan, Ends of the Earth, 297-301. Also see Fernandez-Armesto, 732.

[102]Xu Xiaojun states that "Chinese leaders have identified 'stability at home' as China's supreme interest. China simply cannot afford domestic chaos if it is to have economic development . . . a strategy which focuses efforts on the economy is in the best interests of every Chinese." Xu Xiaojun, 17.

[103]See Xu Xiaojun, 17, 31, 37-38, 41. Ron Montaperto, a senior fellow at the National Defense University, in Senate testimony, summarized in a recent NDU monograph, described the Chinese focus as follows:

> "Conflict is to be avoided. Obvious exceptions involve sovereignty issues such as Taiwan, Hong Kong, or the South China Sea . . . The PLA is dealing with a two-fold security challenge. Immediately and tactically, China is determined to maintain control over the situations with the greatest potential for conflict. This means putting teeth into Beijing's sovereignty claims in the South China Sea and preventing a declaration of independence by Taiwan. By deterring potential conflict in these hotspots, it becomes possible for the Chinese to gain the time necessary to address the larger, more broadly strategic, dimension of the major security challenge: creating an economy capable of supporting the range of economic, political, and military options that will guarantee China's position as a great power."

Ron Montaperto (December 1995), China as a Military Power (on line), available: http://www.ndu.edu/ndu/inss/strforum/forum56.htm (Internet).

[104]See the preceding note. Additionally, China is not likely to reach the current level of US capability in the next five to ten years, but it is conducting a modernization program to upgrade 12-18 divisions, and may achieve a similar capability within 20 years. Gill, 35, 48, 52. Michael T. Klare describes the change in China's focus to its periphery and its quest for a blue-water navy, in Klare, 143-144.

[105]"then President Yang Shangkun confirmed in a secret speech . . . that the leadership had already decided . . . to acquire an aircraft carrier . . . reflect[ing] China's aspiration to develop a blue-water navy . . . its deal with Burma to develop two islands in the Indian Ocean . . . perhaps eventually as some kind of a naval base . . . [indicates a predisposition towards] a blue-water navy, and a significant concern for other countries in the region." Kristof, 66-67. Also see Gill, 48; and Klare, 143-144.

[106]According to Lam Peng Er, former Minister in the Singapore Government and Lecturer in the Department of Political Science, National University of Singapore,

> "The dispute over jurisdiction of the Spratly Islands in the South China Sea has the potential to draw in major powers who are non-claimant states . . . China . . . is by far the most powerful claimant and also has a record of employing force to pursue its various territorial claims (naval confrontation with Vietnam) . . . [and] has promulgated its Territorial Water Law . . . [incorporating]

the Spratlys . . . [reserving] the right to use force if necessary to defend areas deemed to be Chinese territory. . . ."

Lam Peng Er, "Japan and the Spratlys Dispute," Asia Survey 35, no. 10 (October 1996): 995-1000. Additionally, China has been very active in preventing non-claimant states such as Japan and the US from participating in talks on joint cooperation and development of this region; ibid., 1005, 1006, 1007. Further amplifying this position, Xu Xiaojun writes, "Obviously, the South China Sea Islands, which lie within some important sea lanes, have strategic importance. In addition, the area has abundant oil and natural gas reserves. Therefore, the South China Sea involves both China's security [and territorial] interests and its development interests." Xu Xiaojun, 30. Kristof reinforces the potential for conflict in this area:

"The most likely site for a war is probably the South China Sea, which China claims as its own 1,000-mile long pond . . . encompassing the Paracel and Spratly Island groups . . . shipping routes, including those that carry oil from the gulf [Persian Gulf] to Japan . . . [and] some experts believe there are extensive oil and natural gas depositions in the area. . . ."

Kristof, 67. Also see Montaperto, available: http://www.ndu.edu/ndu/inss/strforum/forum56.htm (Internet).

[107]Montaperto, available: http://www.ndu.edu/ndu/inss/strforum/forum56.htm (Internet).

[108]Xu Xiaojun, 31, 33, 37, 41.

[109]Sullivan, "A World of Great Powers," in 2015, 50.

[110]Donald W. Boose, Jr., ed., Conference Report: International Workshop on the U.S.-ROK Alliance, (Carlisle Barracks: US Army War College, Strategic Studies Institute, 11 March 1996), 9.

[111]"By 2006, however, either there will be a different regime in Pyongyang or the two parts of Korea will have unified. The present North Korean system cannot be sustained for another decade . . . With reform, reconciliation or (less likely) the status quo are possible alternative to unification." See Wilborn, "Asia Pacific Region," available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p8.htm (Internet). The projection of a reunified Korea due to an implosion of the North (DPRK) is based on personal and professional observation of this region over a 15 year period. The recent defection of the North Korean Foreign Minister, Hwang Jang Yop, the chief architect of DPRK's doctrine of self reliance is but one more indicator of the chinks in that nation's stability. An assessment of the DPRK's economic and political situation, coupled with this most recent of defections points to several outcomes regarding the DPRK.

1. The status quo can continue, but given the DPRK's current problems, this is unlikely. A recent CNN report cited the average height of DPRK military recruits falling to 4 feet, 9 inches a substantial indication of the impact of food shortages and the general

economic conditions in the North. For this reason, something must give and one of the other outcomes is more likely.

2. The DPRK can explode. This probably will be marked by unrest and a power struggle followed by an invasion of the ROK. This invasion may be launched only to consolidate power within the North, and may be a limited objective attack, say to seize Seoul (the economic, political and cultural center of the South) and then sue for peace, simply to change the balance of power. However, even with a successful seizure of Seoul, senior leaders in Pyongyang must know that the North would lose a war. It would so devastate the North, given its already weakened state, that no real gain can be realized from this option. While the North Koreans do not hold Western values, neither are they total zealots--hence Hwang's defection.

3. An implosion of the DPRK with a hard landing would characterized by internal civil war, the consolidation of power among one or more DPRK factions, followed by some military action by the ROK and US to first contain, and then defuse the aftermath. Reunification would be the probable outcome given the North's non-existent reserves.

4. An implosion of the DPRK with a soft landing is the desired outcome and the one the US and ROK, in particular, are working towards. This situation will probably be marked by some sort of change of power, but not a civil war. It could very well be the result of exhaustion, as with the USSR and the former East Germany.

The intelligence garnered from Hwang will provide the best assessment of which way the DPRK may fall. War must be prepared for, but it appears to be increasingly unlikely.

[112]In anticipation of reunification, the ROK has studied and continues to study the German reunification process in great detail. This should allow the ROK to absorb the North with fewer problems--social and economic--than experienced in Germany. McRae, 256-257.

[113]Dr. Edward A. Olsen of the Naval Post Graduate School states:

> "A case can be made that Korea's size, location, and probable military clout will make it a useful counterweight for the United States in any American effort to preserve a balance of power between China and Japan. But one might also describe Korea's juxtaposition amid China and Japan in any future regional balance of power as the sort of entangling web which Americans might want to avoid at all costs."

Dr. Edward A. Olsen, in Boose, 34.

[114]Prof. Wang Fei-ling "provided a plausible speculation on the attitudes of the Chinese leaders, suggesting that they find a divided, but stable Korea with a US military force presence to be consistent with their interests;" ibid., vi. Dr. Olsen, referenced a "predisposition toward continuity [status quo as evidenced by] Japanese and Chinese ambiguity about Korean reunification . . . ;" ibid., 33.

[115]The Korean people migrated from the Mongolian region in their pre-history.

[116]Sullivan, "A World of Great Powers," in 2015, 23-29.

[117]Ibid., 24-25.

[118]Kaplan, Ends of the Earth, 3-88; "Sub-Sahara Africa," in Strategic Assessment 1995: U.S. Security Challenges in Transition, ed. Patrick Clawson, (Washington, DC: Institute for National Strategic Studies, National Defense University, 1995), 98-99.

[119]"the climate for investment is becoming increasingly risky . . . Southern Africa . . . could be a dramatic and very important exception to the generally unfavorable forecast for the continent." "Sub-Sahara Africa," in Strategic Assessment 1995, 97, 101.

[120]"Sub-Sahara Africa," in Strategic Assessment 1995, 100-101.

[121]Africa has more than sufficient resources to lift itself, but has done little with it. Nigeria squandered its oil revenues on 25 years of haphazard projects, and on corruption, and has nothing to show for it. Passage, 3. In fact Nigeria, a region (nation may be too limiting a description) blessed with oil, is one of Kaplan's prototypical failed states. Kaplan, Ends of the Earth, 14, 83. "Africa is one of the richest continents on this planet. What Africa needs is not more foreign aid . . . it's for its leadership to stop stealing so much of [its income from its riches]. . . Africa does not need a "Marshall Plan" . . . It needs to start using its own ample earnings for its own economic development." Passage, 2.

[122]This region is important to the US economically as trade ties are strong, but it receives limited strategic attention. There is no viable challenger to the US within the region, or globally for control or influence of this region. For this reason there appears to be a paucity of detailed coverage in the body of knowledge, and no coverage or consideration in others, such as Foreign Policy into the 21st Century nor 2015: Power and Progress.

[123]While the world faces towards Asia economically, the third largest trading partner for the US is Mexico. The Caribbean and Latin America constitute 37 percent of US exports. The US exports as much to Brazil as China, and more to Venezuela than Russia. "Western Hemisphere," in Strategic Assessment 1995: U.S. Security Challenges in Transition, ed. Patrick Clawson, (Washington, DC: Institute for National Strategic Studies, National Defense University, 1995), 90.

[124]McRae looks at the integration and hispanicization of the South West US. This region is already an amalgamation of Anglo and Hispanic culture and language, and this trend will continue. McRae, 218-219; and Huntington, Clash of Civilizations, 150.

[125]See note 122. McRae sees hope for the evolving economies of South America to set an example for others to follow. McRae, 218-219.

Strategic Assessment 1995 outlines several encouraging trends--a "silent revolution" of democracy, economic primacy over security policy, government reform, and regional conflict reduction--for this region; "Western Hemisphere," in Strategic Assessment 1995, 83-87. It should be noted that the Army War College's assessment is very pessimistic, suggesting that problem areas--income disparity, over population, subversion, terrorism, etc.--will only increase and worsen over time. Donald E. Schultz (1 February 1996), "Latin America," in World View: The 1996 Strategic Assessment from the Strategic Studies Institute, ed. Earl H. Tilford, Jr., Carlisle Barracks: US Army War College, Strategic Studies Institute (on-line), available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96ss.htm (Internet). The trends towards democracy, economic improvement, and US involvement in the region will likely mitigate these negative issues.

[126]"Western Hemisphere," in Strategic Assessment 1995, 87,88, 91; Schultz, "Latin America," available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p5.htm (Internet); and Murl D. Munger, et al., U.S. Army South After Withdrawal From Panama (USARSO-2000), (Carlisle Barracks: US Army War College, Strategic Studies Institute, 15 August 1991) 19.

[127]The Army War College's Strategic Studies Institute portrays this region as challenged by the same problems experienced today: poverty, overpopulation, crime, narco-trafficing, and instability. Schultz, "Latin America," available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p5.htm (Internet). Strategic Assessment 1995, identifies an uncertain role for Latin American militaries, migration, and economic issues as challenges to stability. "Western Hemisphere," in Strategic Assessment 1995, 88-91. Also see Munger, 19.

[128]Lord Palmerston, in Briggs, Age of Improvement, 352, quoted by Kissinger, 96

[129]Michael G. Roskin, National Interest: From Abstraction to Strategy, (Carlisle Barracks: US Army War College, Strategic Studies Institute, 20 May 1994), 10, 17; Morgenthau, 5-6, 8-9, 541-542. Arthur F. Lykke, Jr., "Defining Military Strategy," Military Review 59, no. 5 (May 1989): 3-8.

[130]Richard A. Chilcoat, Strategic Art: The Discipline for the 21st Century, (Carlisle Barracks: US Army War College, Strategic Studies Institute, 10 October 1995), 2. Lykke, 3-4.

[131]George H. W. Bush, National Security Strategy of the United States, (Washington, DC: The White House, January 1993), 3; and William J. Clinton, A National Security Strategy of Engagement and Enlargement, (Washington, DC: The White House, February 1996), 11-12.

[132]Johnston, Foreign Policy into the 21st Century, xii-xvi.

[133]Bush, 3; Clinton, 11-12; and Johnston, Foreign Policy into the 21st Century, xii-xvi.

[134]Strategic Assessment 1995 outlines four US security interests in the hemisphere: encouraging democracy, expanding access to regional economic markets, responding to drug trade, and controlling migration; see "Western Hemisphere," in Strategic Assessment 1995, 90-91.

[135]See "Russia and Neighbors," in Strategic Assessment 1995: U.S. Security Challenges in Transition, ed. Patrick Clawson, (Washington, DC: Institute for National Strategic Studies, National Defense University, 1995), 59, 65; "Europe," in Strategic Assessment 1995, 45; and Robert Zoellick, et al., "Appendix C: Russia and the Newly Independent States," in Foreign Policy into the 21st Century: The U.S. Leadership Challenge, ed. Douglas Johnston, (Washington, DC: The Center for Strategic and International Studies, 1996), 81-82.

[136]"Russia and Neighbors," Strategic Assessment 1995, 58.

[137]See Bush, 7, 19; Clinton, 35-39; Richard Burt, et al., "Appendix B: The United States and Europe," in Foreign Policy into the 21st Century: The U.S. Leadership Challenge, ed. Douglas Johnston, (Washington, DC: The Center for Strategic and International Studies, 1996), 64-65; and "Europe," in Strategic Assessment 1995, 40-43.

[138]Fairbanks, et al., "Appendix D: The Middle East," in Foreign Policy in the 21st Century, 96; and "Greater Middle East," in Strategic Assessment 1995, 76-77.

[139]See Bush, 19; Clinton, 39-41; Richard Solomon, et al., "Appendix A: Asia," in Foreign Policy into the 21st Century: The U.S. Leadership Challenge, ed. Douglas Johnston, (Washington, DC: The Center for Strategic and International Studies, 1996), 54-55; and "Asia-Pacific," in Strategic Assessment 1995, 21-22.

[140]Professor William T. Pendley (Air War College) noted that "the fundamental issue for the United States is to maintain significant capabilities and some troops on the ground as an assurance of commitment." Boose, 32. "An isolationist policy . . . would cause great problems for East Asia: Chinese, Japanese, and Korean insecurity; a potential arms race; and instability--all damaging to US interests." Ibid., 40.

[141]Patrick M. Cronin and Ezra F. Vogel (November 1995), Unifying U.S. Policy on Japan (on-line), available: http://www.ndu.edu/ndu/inss/strforum/forum51.htm (Internet); and Bush, 19.

[142]Cronin, Unifying U.S. Policy on Japan (on-line), available: http://www.ndu.edu/ndu/inss/strforum/forum51.htm (Internet).

[143]See Bush, 8, 20; Clinton, 43-44; "Russia and Neighbors," in Strategic Assessment 1995, 54-55; and Steven Metz (1 February 1996), "Africa," in World View: The 1996 Strategic Assessment from the Strategic Studies Institute, ed. Earl H. Tilford, Jr., Carlisle Barracks: US Army War College, Strategic Studies Institute (on-line), available: http://carlisle-www.army.mil/usassi/ssipubs/pubs96/wdvu96/wdvu96p7.htm (Internet).

[144]"Sub-Saharan Africa," in Strategic Assessment 1995, 100.

[145]Metz, "Africa," in World View 1997, 58-59.

[146]"Western Hemisphere," in Strategic Assessment 1995, 90-91.

[147] President George Bush, quoted in Department of Defense, Conduct of the Persian Gulf War, (Washington, DC: US Government Printing Office, April 1992), 19.

[148]Eisenstadt, 94-95.

[149]Clawson, "Introduction," in Iran's Strategic Intentions, 2.

[150]Summers, 16.

[151]Kennedy, 539.

[152]Ralph Peters, "After the Revolution," Parameters 25, no. 2 (Fall 1995), 7-14.

Chapter 5

[1]See chapter 4, and Kristof, 66-67.

[2]The Military Balance 1995/96, 126; Clawson, "Introduction," in Iran's Strategic Intentions, 2-3; Chubin, 70-74, 187; and Hashim, 187-190, 212, 213.

[3]Chubin, 187-190.

[4]China has tested new missile technology that ranges the west coast of the U.S. and all of Europe. The Military Balance, 1995/96, 169, 171.

[5]"Western Hemisphere," Strategic Assessment 1995, 90; and "Economics," in Strategic Assessment 1996: Elements of U.S. Power, ed. Patrick Clawson, (Washington, DC: Institute for National Strategic Studies, National Defense University, 1996), 48-50.

[6]China is currently working on an agreement to buy a Russian aircraft carrier. In order for the Chinese navy to maintain the

capability to put a carrier to sea on a regular basis, a minimum of three would be required--the US Navy uses a rule of four to keep one at sea. Montaperto's discussion of China's pursuit of the SU27 also indicates a desire to develop an aircraft carrier capable force. Montaperto, available: http://www.ndu.edu/ndu/inss/strforum/forum56.htm (Internet).

[7]Gill, 46-47, 55. Current activities indicate China's long-term goal of a limited objective force projection military. Additionally,

> "PLA force modernizers have identified a small number of critical military functions and are concentrating on improvements in these areas. Priorities involve force projection and include, but are not limited to: developing anti-submarine warfare, ship-borne air defense, sustained naval operations, and amphibious warfare capabilities; developing strategic airlift, aerial refueling, and ground-attack capabilities, as well as a new generation of air superiority fighters; improving ground forces' mobility and logistical support, air defense, all weather operations, and command and control capabilities. There has been some progress. Most of China's 24 Group Armies have now designated "rapid deployment" units. There is also a force of some 5,000 marines. These formations are equipped with the PLA's most modern ground weapons and are at the leading edge of training reform. While such "crack units" would be effective in operations in the South China Sea, their small size, their dispersal throughout China, and a lack of lift all limit their effectiveness for large scale operations, such as an invasion of Taiwan. The Air Force is making an effort to address the problem of strategic lift. It has acquired 10 Ilyushin heavy-transport aircraft from Russia and in 1995 began an effort to integrate long-range transport operations into the training cycle. However, the small number of suitable aircraft will make it difficult to conduct such training on a scale large enough to make a difference. The Air Force has also acquired 26 SU27 fighter aircraft. Although the SU27 provides a clear qualitative gain, the lack of an aerial refueling capability will deny the PLA their full benefit."

Montaperto, available: http://www.ndu.edu/ndu/inss/strforum/forum56.htm (Internet).

[8]China's program is focused on qualitative nuclear force improvement as evidenced by missile tests vice increasing numbers; Strategic Balance 1995/96, 169, 171.

[9]Ahab Dixit, "India's military hardware troubles--replenishment is the short-term answer," Asia-Pacific Defense Review 1996 Annual Reference Edition, 1996, 11.

[10]Martin C. Libicki, The Mesh and The Net: Speculation on Armed Conflict in a Time of Free Silicon, (Washington, DC: Institute for National Strategic Studies, National Defense University, March 1994), 25, 49-56, 63; "Conclusions and Recommendations," in 2015, 153; Friedman, 158-159.

[11]Henley, 48.

[12]Gordon R. Sullivan, and James M. Dubik, Land Warfare in the 21st Century, (Carlisle Barracks: Strategic Studies Institute, US Army War College, 1993), 22.

[13]Joint Vision 2010, 13-14; Martin C. Libicki, interview by the author, 3 April 1997, Washington, DC, notes, National Defense University, Institute for National Strategic Studies, Ft. McNair.

[14]John M. Collins, Military Space Forces: The Next 50 Years, (Washington, DC: Permagon-Brassey's, 1989), 55, 148, 163.

[15]Nair, 125, 131-132,139

[16]JSTARS was able to confirm that there were no reinforcements were being sent. Department of Defense, Conduct of the Persian Gulf War, (Washington, DC: US Government Printing Office, April 1992), 710. However, reinforcements were not what precipitated the attack. The system did not detect the initial movement of Iraqi forces for the attack.

[17]Krepinevich, The Air Force at a Crossroads, 45.

[18]van Creveld, Transformation of War, 18-32.

[19]Macgregor, Breaking the Phalanx, 124, 144-145.

[20]Martin C. Libicki, "The Shape of War to Come," in 2015: Power and Progress, ed. Patrick M. Cronin, (Washington, DC: Institute for National Strategic Studies, National Defense University, July 1996), 136.

[21]Douglas A. Macgregor, "Future Battle: The Merging Levels of War," Parameters, 22, no. 4 (Winter 1992-93): 38.

[22]Vickers, 2.

[23]Brian R. Sullivan, interview by the author, 3 April 1997, Washington, DC, notes, National Defense University, Institute for National Strategic Studies, Ft. McNair.

[24]Randal G. Bowdish, "The Revolution in Military Affairs: The Sixth Generation," Military Review 65, no. 6 (November-December 1995): 26-33.

[25]Michael Lancaster, interview by the author, 4 April 1997, Tysons, VA, notes, Science Applications International Corporation, Tysons, VA.

Chapter 6

[1]Douglas A. MacArthur in Tsouras, Warrior's Words, 223.

[2]Michael O'Hanlon, Defense Planning for the Late 1990's: Beyond the Desert Storm Framework, (Washington, DC: The Brookings Institution, 1995), 1, 3.

[3]Joint Vision 2010, 7, 13, 32.

[4]General Accounting Office, Operation Desert Shield/Storm: Costs and Funding Requirements (Report to the Chairman, Committee on Armed Services, House of Representatives), (Washington, DC: GAO, September 24, 1991), 2.

[5]Cost estimates for Vietnam, Korea, and World War II cited from Robert J. Samuelson in the 4 February 1991 News Week, in Nair, 192.

[6]"Accelerating rates of change will make the future environment more unpredictable and less stable." Joint Vision 2010, 8.

[7]Krepinevich, "Recasting Military Roles and Missions," 43-44.

[8]Michael Howard, "Men Against Fire: The Doctrine of the Offensive in 1914," in Makers of Modern Strategy, ed. Peter Paret, (Princeton, NJ: Princeton University Press, 1986) 512-518

[9]Friedman, 248-250.

[10]Porter, 64, 70.

[11]Ibid., 62.

[12]Joint Vision 2010, 32.

[13]Krepinevich, "Recasting Military Roles and Missions," 41.

[14]Kennedy, 539.

[15]Joint Vision 2010, 4.

[16]Joint Vision 2010, 10-11.

[17]Joint Vision 2010, 4.

[18]Joint Vision 2010, 10.

[19] Joint Vision 2010, 31.

[20]Joint Vision 2010, 1-2.

[21]Joint Vision 2010, 16.

[22]Joint Vision 2010, 22-24.

[23]Joint Vision 2010 is linked to the present national security and national military strategies. Ervin Lessel, interview by the author, 4 April 1997, Washington, DC, notes, Joint Staff, J7, The Pentagon. This shortcoming is highlighted in many of the comments coming from the QDR, where participants and observers are stating that the review should focus more on strategy and less on hardware and structure. Perhaps, a national vision for 2010 must be produced for this process to have any long-term meaning.

[24]Joint Vision 2010, 32.

[25]Sheila E. Windall, (25 November 1996), "Adapting To An Altered Strategic Environment" (on-line), available: http://www.dtic.mil/airforcelink/pa/speech/current/Adapting_To_An_Altered_Stra.html (Internet).

[26]Douglas V. Johnson, "Army Issues For 1997," in World View: The 1997 Strategic Assessment From the Strategic Studies Institute, ed. Earl H. Tilford, Jr., (Carlisle Barracks: Strategic Studies Institute, 3 February 1997), 20.

[27]Global Engagement, available: http://www.af-future.hq.af.mil/21/intro.htm (Internet); and "Precision Engagement," in Global Engagement, available: http://www.af-future.hq.af.mil/21/core/precision.htm (Internet).

[28]Army Vision 2010, available: http://160.147.68.21.:80/2010/introduction.htm (Internet).

[29]"The Way Ahead," in Army Vision 2010, available: http://160.147.68.21.:80/2010/way_ahead.htm (Internet).

[30]"The Geostrategic Environment," in Army Vision 2010, available: http://160.147.68.21.:80/2010/geostrategic_environment.htm (Internet).

[31]"The Way Ahead," in Army Vision 2010, available: http://160.147.68.21.:80/2010/way_ahead.htm (Internet).

[32]US Army Training and Doctrine Command (6 March 1997), Force XXI, Ft. Monroe, VA: Training and Doctrine Command (on-line), available: http://204.7.227.75:433/force21/f21.html (Internet).

[33]David Eshel, "Trends in Future Tank Developments," Military Technology 16, no. 10 (October 1992): 14; Wolf-Dietrich Kutter, "The US Army Enters the 21st Century," Military Technology 16, no. 12 (December 1992): 40; and Marvin Leibstone, "US Army Equipment & Force XXI," Military Technology 19, no. 12 (December 1995): 11.

[34]Giulio Douhet, Command of the Air, (Washington, DC: Office of Air Force History, 1983), 20-23, 26-27. "The purpose of aerial warfare is the conquest of the command of the air . . . [and then] crushing the material and moral resistance of the enemy." Ibid., 128.

[35]Global Engagement, available: http://www.af-future.hq.af.mil/21/intro.htm (Internet).

[36]"Air and Space for the Next Century," in Global Engagement, available: http://www.af-future.hq.af.mil/21/airs.htm (Internet).

[37]Global Engagement, available: http://www.af-future.hq.af.mil/21/intro.htm (Internet).

[38]Directions for Defense, 2-20.

[39]"Core Competencies," in Global Engagement, available: http://www.af-future.hq.af.mil/21/core.htm (Internet).

[40]"Air and Space Superiority," in Global Engagement, available: http://www.af-future.hq.af.mil/21/core/airspace.htm (Internet).

[41]Ibid.

[42]Functions of DoD, para F.6.a.(2)(b).

[43]"Global Strike," in Global Engagement, available: http://www.af-future.hq.af.mil/21/core/global.htm (Internet).

[44]Ibid.

[45]"Rapid Mobility," in Global Engagement, available: http://www.af-future.hq.af.mil/21/core/rapid.htm (Internet).

[46]Potter, 74.

[47]"Precision Engagement," in Global Engagement, available: http://www.af-future.hq.af.mil/21/core/precision.htm (Internet).

[48]Ibid.

[49]Nair, 126, 133, 137-138; and Thomas A. Keaney, and Eliot A. Cohen, Gulf War Air Power Survey Summary Report, (Washington, DC: US Government Printing Office, 1993), 227.

[50]Windall, "Adapting To An Altered Strategic Environment," available: http://www.dtic.mil/airforcelink/pa/speech/current/Adapting_To_An_Altered_ Stra.html (Internet).

[51]"Information Superiority," in Global Engagement, available: http://www.af-future.hq.af.mil/21/core/information.htm (Internet).

[52]Michael R. Gordon, and Bernard E. Trainor, The General's War: The Inside Story of the Conflict in the Gulf, (Boston: Little, Brown, and Co. 1995) 395-398, 4288-431, 464; and H. Norman Schwarzkopf, and Peter Petre, It Doesn't Take a Hero: General H. Normal Schwarzkopf: The Autobiography, (New York: Bantam Books, 1993), 466-467.

[53]Functions of DoD, para F.6.c.(2)(a).

[54]Forward . . . From the Sea, available: http://www.chinfo.navy.mil/navpalib/ policy/fromsea/forward.txt (Internet).

[55]Ibid.

[56]Ibid.

[57]Ibid.

[58]The Commission on Roles and Missions of the Armed Forces was formed to assist Congress in determining what "changes are required in the allocation of roles and missions, today and for the future, to ensure that the Nation will have properly prepared military forces for the challenges ahead." Directions for Defense, 1-2.

[59]Some dominant maneuver working groups are using forces that operate as complex adaptive systems, resembling brigade type organizations with capabilities associated with divisions, and technologically, organizationally and doctrinally different from any force type presently in existence. In Office of Net Assessment, "Dominating Maneuver Workshop IV, Summary Report," Summary of presentations, assessments and outcomes from workshop IV, Carlisle Barracks: US Army War College, August 1996, 10, 23. One working group at Workshop IV examined the ability to transition from current forces to those being contemplated and concluded that "this kind of fundamental change almost certainly could not succeed without an intervening step." Ibid., 20. These conclusions were also reflected in a conversation with a senior contractor for the dominant maneuver workshops; Lancaster, interview.

[60]In one engagement eighteen AH64 attack helicopters killed one-hundred and two Iraqi vehicles with one-hundred and seven hellfire missiles in less than one hour; Gordon, 312-313. Subsequently, a similar organization was unable to achieve similar results on fleeing Republican Guard units because a USAF kill box was established beyond the 20 Easting and the Iraqis were able to escape; ibid., 315.

[61]O'Hanlon, 54; Friedman, 248.

[62]Bob Woodward, The Commanders, (New York: Pocket Books, 1991), 139-143

[63]Functions of DoD, para B.2.c.(4).

[64]Woodward, 277.

[65]Douglas C. Lovelace, Jr., Unification of the United States Armed Forces, (Carlisle Barracks: Strategic Studies Institute, August 6, 1996), 42-44.

[66]Michael Howard, "Military Science in an Age of Peace," RUSI, Journal of the Royal United Service Institute for Defense Studies 119 (March 1974): 6.

[67]Macgregor, Breaking the Phalanx, 13-14.

[68]Woodward, 340-341.

[69]Directive 5100.1, para B.2.c.(1), (4), and D.1.c..

[70]"Middle East Radicalism," in Strategic Assessment 1996, ed. Patrick Clawson,(Washington, DC: Institute for National Strategic Studies, National Defense University, 1996), 173.

[71]Lews I. Jefferies, "A Blueprint for Force Design," Military Review, (April 1991): 24-26.

[72]Joint Vision 2010, 31.

[73]"Krepinevich and Marshall liken the current situation in war fighting to the one that existed in the 1930s, just before the outbreak of World War II . . . [contending] that war fighting today is at a similar threshold: The Gulf War showed off the new technology . . . but the Defense Department was still using the same doctrine and tactics it had developed to fight the Soviet Union." Pine, A5. While this is true, it will take a while to reach a point in time similar to the 1930s; the doctrine for blitzkrieg came from World War I yet was not fully exploited until about 1939; Cohen, "A Revolution in Warfare," 46. In the present situation this means that changing organizations and doctrine now will better enable them to embrace technology as it evolves in the future.

[74]"In maneuver warfare, close-in battlefield interdiction is as important as ever but is becoming increasingly an army mission undertaken by attack helicopters and multiple launch rocket systems." Martin van Creveld, Air Power and Maneuver Warfare, (Maxwell AFB, AL: Air University Press, 1994), 194-196.

[75]Macgregor, Breaking the Phalanx, 84.

[76]John B. Wilson (December 1995), Influences on U.S. Army Divisional Organization in the Twentieth Century (on-line), available: http://call.army.mil: 1100/call/exfor/articles/influences.htm (Internet).

[77]Macgregor, Breaking the Phalanx, 188-190.

[78]"the Gulf War ended with the recovery of Kuwait, the Coalition's stated goal. In an article titled 'The War in the Persian Gulf: Lessons and Conclusions,' three Russian general staff officers noted the massive use of cruise missiles, the employment of AWACS aircraft to direct the air offensive, the waging of electronic warfare to blind and confuse, and deceive the enemy, and the overall American capability to project air and naval forces globally in order to exert political influence. The authors, however, went on to register three important stipulations: The air offensive failed to destroy the Iraqi ground forces; The air offensive failed to destroy the Iraqi nuclear complexes; It was the ground offensive that compelled the Iraqis to submit unconditionally to the American-led coalition forces." Macgregor, "Future Battle," 40-41. Also see Gordon, 442, 474.

[79]"The Air Force's bread-and-butter missions remain strategic attack, interdiction, and close air support. . . . An Air Force focused on information dominance may lose its ability to wage war against 'unsophisticated' opponents who are likely to challenge American interests . . .," Mark Clodfelter, and John M. Fawcet, Jr., "The RMA and Air Force Roles, Missions, and Doctrine," Parameters 25, no. 2 (Summer 1995): 29. To better focus a future air force, CAS should be removed from the mission set as this competency is really linked to maneuver warfare and not to control of the aerospace environment and strategic attack.

[80]A changing world requires expeditionary forces and a need for "agile, long-range forces, ready to fight on arrival. . . . [providing] all the bomb dropping, bullet shooting, and support capabilities that we know must be integrated in modern air combat. In other words, it will itself [Air Combat Command] be able to conduct independent, integrated air operations." Merrill A. McPeak, "Tomorrow's Air Force," Merrill A. McPeak, Selected Works, 1990-1994, (Maxwell AFB, AL: Air University Press, August 1995), 69, 86-87. The proposed AEW is focused on aerospace superiority and attack, not on air mobility as with the previous composite wing at Pope AFB. These wings would mirror more closely the wings used during Desert Shield/Storm. General Accounting Office, Air Force Organization: More Assessment Needed Before Implementing Force Projection Composite Wings (Report to the Chairman, Subcommittee on Readiness, Committee on Armed Services, House of Representatives), (Washington, DC: General Accounting Office, 5 May 1993), 2, 5, 7.

[81]Joint Vision 2010, 20.

[82]Brian R. Sullivan, in an interview with the author, raised this concept when queried on the possibility of using ICBMs as a global strike asset using conventional warheads or brilliant submunition payloads. This is an option, however, Dr. Sullivan stated that nuclear ICBMs should be negotiated away, and not unilaterally refitted. Even so a series of inspection protocols could mitigate any problems associated with the launch of a conventional ICBM being mistaken for a nuclear launch by Russia or China. For more on conventional ICBMs see Richard M. Patenaude, "The Role of Conventional Intercontinental Ballistic Missiles in United States Military Strategy," Master of Military Art and Science Thesis, US Army Command and General Staff College, 1995.

[83]Les Aspin, An Approach to Sizing American Conventional Forces for the Post-Soviet Era, (Washington, DC: US Government Printing Office, February 25, 1992) Chart IV. Also see John N. Lewis, Downsizing Future USAF Fighter Squadrons: Living Within the Constraints of History, (Santa Monica, CA: RAND, 1995), 65-67.

[84]Paul Bracken, "The Significance of DBK," in Dominant Battle Space Knowledge, eds. Stuart Johnson and Martin C. Libicki, (Washington, DC: Institute for National Strategic Studies, National Defense University, April 1996), 52.

[85]Ken Booth, Navies and Foreign Policy, (New York: Holmes and Meier, 1979), 15.

[86]Ibid., 23-24.

[87]Donald C.F. Daniel and Bradd C. Hayes, The Future of U.S. Sea Power, (Carlisle Barracks: US Army War College, Strategic Studies Institute, May 1993), 24-26.

[88]"The Navy was the first military force to response to the invasion, establishing immediate sea superiority [not difficult given the lack of Iraqi capability, but the next sentence is important to the consideration of global attack and airpower]. And the Navy was also the first airpower on the scene. Both of these first deterred, indeed--I believe--stopped, Iraq from marching into Saudi Arabia." General Norman Schwarzkopf, quoted in Department of the Navy (May 1993), "Carriers for Force 2001: A Strategy Based Force Structure, Washington, DC: Department of the Navy (on-line), available: http://www.chinfo.navy.mil/navpalib/policy/fromsea/ftsucf2.txt (Internet).

[89]Michael O'Hanlon from the Brookings Institution suggests that an eight carrier force could provide up to seven carriers on short notice. O'Hanlon, 53. Given the normal operational and maintenance rotation of naval shipping, a figure of between four and six seems more realistic. Further, assuming a shift in the orientation from platform protection to strike operations, most of the 80 to 90 aircraft based on a carrier

could focus on strike operations. Aircraft figures per carrier are based on The Almanac of Seapower, 1990 3, No. 1, Navy League of the United States, (January 1990): 140-141.

[90]Functions of DoD, para 6.b(2).

[91]George C. Wilson, "Sheehan: The military as he sees it," Army Times, 7 April 1997, 10.

[92]"Modern tank armies only appear mobile. . . [The fact is that they are approaching] immobility. . . ." van Creveld, Air Power and Maneuver Warfare, 201.194-196.

[93]O'Hanlon, 54.

[94]Martin C. Libicki, interview by the author, 3 April 1997, Washington, DC, notes, National Defense University, Institute for National Strategic Studies, Ft. McNair.

[95] David Kassing, Getting U.S. Military Power to the Desert: An Annotated Briefing, (Santa Monica, CA: RAND, January 1992), 31, 54, 22-23.

[96]Nair, 187-188.

[97]Michael Lancaster, a strategist for SAIC and a contractor for the Office of Net Assessment's dominant maneuver workshops described significant changes in organizations, doctrine, and purposes for all services beyond 2010. These include decentralized battlefields, CONUS to combat deployment of forces, radical changes in the relationship between fires and maneuver, and predominance of unmanned aerial platforms. Lancaster, interview. Likewise, the Army After Next Project briefing "Emerging impressions, AAN and the Winter Wargame" identifies the concept of a vertical rather than horizontal battlefield, zone rather than positional operations, and operational decision in minutes rather than hours when the battle is joined. Army After Next Project, "Emerging Impressions, AAN and the Winter Wargame," briefing package on outcomes of Army After Next War Game, Ft. Monroe, VA: Deputy Chief of Staff for Doctrine, US Army Training and Doctrine Command, 6 March 1997.

[98]US Army Armor Center and Fort Knox, Armor 2000: A Balanced Force for the Army of the Future, (Ft. Knox, KY: US Army Armor Center and Fort Knox, 1990),12.

[99]Richard Perle, (23 December 1996), "Paring the Pentagon: Clinton's Indefensible Defense Strategy," in Rising Tide (on-line), available: http://rnc.org/news/tide/9404/article06.htm (Internet).

[100]As previously noted, an Electronics Industries Association briefing identified aircraft, aircraft carriers, tanks and maneuver warfare as the "casualties" of the RMA, and concepts like massive

standoff, and weapons such as lasers, and the like as the "children" of the RMA. Electronics Industries Association, 37-40. They further postulate an RMA priority force for 2010 with between five and seven divisions total, six CVBGs, ten arsenal ships, four air wings, and a strategic force of two-hundred bombers and fourteen SSNs. Ibid., 45-46.

[101]The Friedmans talk specifically about the irrelevancy (they call it senility) of tanks, aircraft carriers, and manned aircraft. Friedman, 152-159, 200-204, 282-285. They further conclude that the strategic weapons of the Gulf War were the F117 and the TLAM (due to their precision strike capabilities) and that the center of gravity was space. Ibid., 302-303. From these observations of senility and conclusions from the Gulf War, they postulate a way of war focused on sensors, including use of the infantry to find the enemy, and then cruise missile type systems attacking them. Ibid., 334-335, 341-342, 373-376, 379-380.

[102]Richard Perle proposes substantial reductions in personnel accounts to fund precision strike capabilities. He states that a reduction in one service member results in savings of about $60 thousand. Perle, "Defense Planning for the 21st Century." As with any procurement plan, funding must be freed up from some other account. Cutting ground forces, currently about 670 thousand (495 thousand Army and 175 thousand USMC), to two division equivalents would provide a savings of about 570 thousand personnel or $34 billion. Technology costs money. This savings would provide a minimum investment for precision strike technology given current difficulty in finding $60 billion for modernization, the millions of dollars each cruise missile costs, the projected hundreds of billions required for the F-22, and the $1 billion price tag of a single B-2.

[103]Using Perle's calculus, portions of the EIA RMA force described in note 100 would have to be cut to realize the LRPS capabilities Perle suggests. Surprisingly, the EIA proposal (see above) is more robust in land forces than what Perle and Luttwak seem to advocate. Perle, Defense Planning for the 21st Century;" and Luttwak, "A Post Heroic Military Policy," 33-42.

[104]The Electronics Industries Association postulates only six aircraft carriers, seventy-five total surface combatants, and ten arsenal ships, Electronics Industries Association, 45. This total is less than half of the Navy's current strength Strategic Balance 95/96, 23-32.

[105]Libicki, "DBK and Its Consequences," 40. This concept was further discussed during an interview with the author; Libicki, interview.

[106]The Federation of American Scientists lists a number of limitations and key technologies necessary to realize this capability including cost, Hunter sensor suite, real time weapons retargeting,

anti-jam GPS, all weather three meter circular error probable weapons, hyper-sonic weapons, and retaskable sensors. Federation of American Scientists (4 March 1997), "B. Precision Force," Joint Warfighter S&T Plan--Precision Force (on-line), available: http://www.fas.org/spp/military/docops/defense/jwsp/jw04b.htm (Internet)."

[107]As previously discussed, cutting ground forces down to two active division equivalents would free up $34 billion. Reliance on arsenal ships, needing only "half as many [personnel] as the U.S. Navy's slightly larger Perry frigates" would result in further personnel savings. Bill Sweatman, "A Ship That Fools," Popular Science, April 1997, 55. These savings could be turned around to support modernization and would have to be invested in order to realize this force concept.

[108]Gordon, 474.

[109]Army After Next Project, "Emerging Impressions;" and Libicki, interview.

[110]The Federation of American Scientists refers to cooperative engagement capability demonstrations by 2003; FAS, "Precision Force," available: http://www.fas.org/spp/military/docops/defense/jwsp/jw04b.htm (Internet). Further, precision MLRS intended to defeat new short exposure North Korean systems will be conducted in 1997. Federation of American Scientists (4 March 1997), Defense Technology Objectives, Precision Force (on-line), available: http://www.fas.org/spp/military/do...defense/jwsp_dto/jw_dto/jw_dto_b.htm#B.0 (Internet).

Chapter 7

[1]Former RAF Marshall, Sir John Slessor, Air Power and Armies, 1936, in Department of Defense, Conduct of the Persian Gulf War, 147.

[2]LTC Lessel, from J7 Joint Staff, articulated this concept in an interview with the author on 4 April at the Pentagon. This notion of full spectrum utility is significant and useful. It assists in selecting the best pieces of equipment and designing the best organizations to realize success in any conflict environment. One example of an item of equipment with full spectrum utility is the C17, it effectively performs its air mobility role in any conflict environment. An F117 on the other hand, is more applicable at the higher end of the scale in conflict with regional peer competitors, and is of little or no use in a peacekeeping operation. This calculus does not preclude procuring F117s, but it can assist in making judgments as to priority and amounts of systems. Lessel, interview.

[3]The following examples illustrate the different approaches to describing competitors. Andrew Krepinevich, describes competitors in

terms of technology or equipment types to be used; Krepinevich, The Air Force in 2016, 9-10. Steven Metz and James O. Kievit, from the US Army War College, describe competitors in terms of technology and strategic force application; Steven Metz and James O. Kievit, Strategy and the Revolution in Military Affairs: From Theory to Policy, (Carlisle Barracks: US Army War College, Strategic Studies Institute, 25 July 1994), 23-26. Martin Libicki's conclusions from a recent conference on the RMA suggests a classification of competitors as peer, regional or niche. A peer competitor

> "could challenge our [US] military across the board. A niche competitor would be incapable of doing so, but would strive to defeat U.S. intervention by developing capabilities such as primitive weapons of mass destruction, sensor blinders, physical terrorism . . . or hostage maneuvers. A regional competitor would operate primarily against its neighbors and design its forces accordingly. . . . The categories of regional and niche competitor are not mutually exclusive . . . Nevertheless, the instruments required for regional dominance . . . and those required to inhibit U.S. involvement . . . may differ sharply."

Martin C. Libicki, and James Hazlett, (July 1996), The Revolution in Military Affairs (on-line), available: http://www.ndu.edu/ndu/inss/strforum/z1106.htm (Internet).

[4]Metz, Strategy and the Revolution in Military Affairs, 24.

[5]Krepinevich, The Air Force in 2016, 9; Libicki, The Revolution in Military Affairs, available: http://www.ndu.edu/ndu/inss/strforum/z1106.htm (Internet).

[6]Libicki, The Revolution in Military Affairs, available: http://www.ndu.edu/ndu/inss/strforum/z1106.htm (Internet).

[7]Joint Vision 2010, 4; and Clinton, iii.

[8]Joint Chiefs of Staff, Joint Pub 3. Doctrine for Joint Operations, (Washington, DC: US Government Printing Office, 1 February 1995).

[9]Joint Chiefs of Staff, Doctrine for Joint Operations,, A1-A3.

[10]William T. Johnsen, et al. (1 August 1995), The Principles of War in the 21st Century: Strategic Considerations, Carlisle Barracks: US Army War College, Strategic Studies Institute (on-line), available: http://carlisle-www.army.mil/usassi/ssipubs/pubs95/pow21/pow21p1.htm (Internet).

[11]Johnsen, et al., The Principles of War in the 21st Century, available: http://carlisle-www.army.mil/usassi/ssipubs/pubs95/pow21/pow21ss.htm (Internet).

[12]Colonel Warden discusses political and economic centers of gravity, the population as a center of gravity, command and control as a center of gravity, and forces as a center of gravity. John A. Warden, III, The Air Campaign: Planning for Combat, (Washington, DC: NDU Press, 1988), 9-10, 51-58, 60-63, 138-139, 148. Also see Tom Clancy, Fighter Wing: a guided tour of an Air Force Combat Wing, (New York: Berkley Books, 1995) 41.

[13]China currently possesses four thousand fighter aircraft, but only about two-hundred are SU27 or comparable aircraft; The Military Balance 1995/96, 178. As previously discussed, the Chinese are reducing their structure and modernizing, but it is doubtful that they can procure or build sufficient aircraft of sufficient quality to challenge the US Air Force described.

[14]"it will likely confront the issue of scale . . . blitzkrieg . . . when executed against the Soviet Union in 1941, failed to achieve similarly decisive results, in part simply because of the sheer size of the USSR." Krepinevich, The Air Force of 2016, 8-9.

[15]Morgenthau, 29. Morgenthau goes on to say about nuclear weapons (perhaps a similar analogy to LRPS) that "the magnitude of its destructiveness, as compared with the limited character of the political purposes which are the proper object of foreign policy, renders nuclear force [LRPS force?]unusable as an instrument of foreign policy. . . . In contrast, conventional force [EMA force?] is usable as an instrument of foreign policy; for by inflicting limited damage with commensurate risks to oneself, one can us it indeed as a suitable instrument for changing the other side's will. Ibid., 30.

[16]Ibid., 30. "The very success of the bombing [during Desert Storm] could have evoked adversarial reactions . . . motivated . . . by the scope of the American victory." Edward Luttwak, in The Future of Air Power in the Aftermath of the Gulf War, eds. Robert L. Pfaltzgraff, and Richard H. Schultz, (Maxwell AFB, AL: Air University Press, 1992), 22.

[17]Ibid., 29.

Chapter 8

[1]T.R. Fehrenbach, This Kind of War, quoted in Department of Defense, Conduct of the Persian Gulf War, 227.

[1]Sir Basil Liddell Hart, Thoughts on War, in Tsouras, Warrior's Words, 201.

[2]"Strategists should not be mesmerized by the amount of change . . . or the expectations of technology." Sullivan, Land Warfare in the 21st Century, 25.

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